HOUSING DESIGN AND SOCIO-CULTURAL VALUES IN LIBYA: AN INVESTIGATION OF TRADITIONAL AND CONTEMPORARY HOUSING

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To the Memory of My Mother

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ABSTRACT

Shelter is a basic necessity of life for all human beings. Beyond meeting this basic need shelter should also meet the requirements of their way of life and socio-cultural values; requirements such as privacy, security, recognition of religious considerations and the desire for prestige and status. Traditional forms of shelter are able to meet these requirements but the ability of more contemporary forms to do so is questionable. This can be attributed to imperfect or scarce knowledge on the part of the provide, both with regard to resident's housing preferences and to the factors which determine their satisfaction with the built environment.

The result of rapid urbanisation, a common characteristic of most developing countries, is the tendency to apply western technology and building methods without considering the socio-cultural values and needs of the society. It is more desirable to be selective, to choose what is appropriate rather than apply the imported technology wholesale. In the Libyan Arab Jamahiriya, development has changed the physical and social contexts of the country. The housing sector in particular has expanded tremendously as a result of the oil economy, while the social life remains largely unaltered. People accept modern architecture, but also wish to preserve their indigenous socio-cultural values and identity. Moreover, contemporary housing differs greatly from traditional architecture with respect to scale, space organisation, layout, land use, architectural style and house type. Indeed, contemporary architecture seems to reflect Western social values and norms and in Libyan Arab Jamahiriya has failed to accommodate man's interaction with his environment, particularly in the context of use of space.

This research is intended to be a contribution towards modelling and demonstrating the appropriate housing design for Libyan society in terms of the requirement of the socio-cultural values. It will specifically examine the existing house design system in two residential areas: a government built contemporary settlement and a traditional settlement, both in Ghadames city in south-west Libya. Data will be collected through different techniques: physical survey, questionnaires, observation, interviews and documents. This will be followed by a comparative analysis of the two settlements (traditional and contemporary) in order to investigate residents' satisfaction with the design of their existing housing in both traditional and contemporary areas. It will also identify their preferences for the dwelling types which satisfy their socio-cultural values and requirements.

This study is composed of four interrelated parts. The first part draws on the introduction and background material in order to set out the problems, ideas, aims and objectives, of the housing development. The second part is mainly concerned with the theoretical and methodological groundwork of the research. The third part introduces the case study area and contains the users' evaluation of their housing, traditional and contemporary. The fourth part states the findings and gives recommendations and conclusions.

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CHAPTER ONE

CHAPTER ONE: INTRODUCTION

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1.1 Introduction

Modern architecture, shaped by advanced industrial technology, has been directly introduced to many developing countries without sufficient thought being given to the special needs of the particular country. This type of architecture, designed as a response to the universal need for skills, has ignored, or has not been able to take into consideration, the needs of particular socio-cultural values and ways of life which are very important aspects in the housing design process, particularly in developing countries.

The development of the housing design process in developed countries has been associated with industrialisation and new types of social organisation. These include a decrease in family size, loose kinship ties, expansion of non-family institutions, increase of participation in formal associations, and increase in social mobility and stratification of society based on new achievement criteria (income, education and occupation). Such changes in developed societies produced new architecture, which we know today as **modern architecture**, designed through advanced technology, labour skills and building materials. However at the same time, in most developing countries, where there is an urgent need for housing, millions of people are living in inappropriate shelters or without housing at all. The governments of these countries have tended to introduce modern housing design, whether or not it is in accordance with their socio-cultural conditions. This kind of modern housing may have addressed housing need, but it has failed to satisfy the socio-cultural values of the users and so has created a multitude of housing problems. This fact has been confirmed by Rapoport (1979) who states that direct **copying** of housing forms from one culture or group to another is not practicable, as experience obtained from the cultures of other societies proves. By developing suitable and acceptable techniques which suit our environments, activity systems, and socio-cultural values we can avoid the problem of over generalisation.

At present, most developing countries undergoing urbanisation have adopted the "developed" countries' modern way of life, and embracing their products and production processes. In the building and construction industry this vision of urbanisation is expressed vividly through large, expensive, and luxurious buildings which use imported building materials to create large internal spaces not suitable for the indigenous society. However, evidence has shown the importance of socio-cultural aspects in housing design process; Rapoport (1969:47) has noted that:

> "House form is not simply the result of physical forces or any single causal factor, but is the consequence of a whole range of socio-cultural factors seen in their broadest terms. Form is in turn modified by climatic conditions (the physical environment which some things impossible and encourages) and by methods of construction, materials available, and the technology (the tools for achieving the desired environment). It will call the socio-cultural forces primary, and the others secondary or modifying."

Acceptable architecture takes into consideration the socio-cultural and environmental principles as well as way of life systems, especially in human settlements.

Traditional shelter design in these developing countries successfully reflects man's interaction with his environment and the socio-cultural values that have influenced people, their way of life, and their dignity. It reflects their values and own self-esteem. Even today, when entering the traditional houses and settlements, one is impressed by a feeling of awe engendered by years of history and culture. These houses' simple design and construction has suited the limited resources. However very few designers currently working, particularly in Libya, have studied or taken into account the forms of traditional architecture in the housing design process. Lessons must be learnt from traditional ways of design and building. To meet man's physical and socio-cultural needs, we must understand that man built his traditional dwelling by responding to his environment and

the forces that acted upon the design of such dwellings and settlements. We should be shaping the houses to the measure of the people's songs (Fathy, 1969). This means knowing the people well in order to identify their needs.

1.2 Statement of the problem

Shelter is a very important aspect of human life. Human beings need stability, protection, comfort, privacy, security and religion. If shelter fails to provide these, the comfort, health, and morale of the users can be seriously affected. The ways in which people behave in their environment is a reflection of their "ego". The design of a dwelling reflects certain beliefs and attitudes. "Standing in the community is self-evident from one's home, and mirrors the history of the occupant and his cultural values with society" (El Fortea, 1989:6). Rapoport (1981:21) wrote:

> "Housing is essential, it is a basic human need and central component in our daily lives. For most groups in our culture the dwelling is very central.....most time is spent in it; it is one's most valuable possession. It has highest effective meaning and it is increasingly the locus of much recreation previously occurring elsewhere.".

It is clear from what Rapoport says that shelter must be designed in such a way as to reflect the socio-cultural values and attitudes of people who spend most of their time at home, (particularly women), in developing countries like Libya. Any mistake or weakness in this process creates physical and socio-cultural problems in society.

One decade after Independence, the provision of housing in Libya was highly inappropriate in quality and quantity. A large part of the population was living in huts, tents and caves, lacking even the simplest conveniences for human life. The other part

lived in traditional houses, designed and built by their owners, that more closely identified with traditional values. In 1951, Libya became an independent country through the action of the General Assembly of the United Nations. Although the latter provided Libya with the assistance it requested, many of the country's problems were not solved. The most important of these to emerging country was the housing problems.

The housing problem in Libya, particularly housing for low-income groups, received little attention from the government until the Al-Fateh Revolution took over on 1st, September 1969. For many years the majority of the Libyan people lived in inappropriate shelters. During the Turkish period (1835-1911), the housing problem was completely ignored and large amounts of traditional Libyan architecture was demolished. During the Italian colonisation (1911-1943), the situation was worsened by war which seriously affected the country's economic situation as well as destroying the housing sector, particularly in coastal cities such as Tripoli. The Italian Government focused on the problem of housing Italian immigrant families and neglected indigenous people completely. The Italian administration also attempted to demolish the Libyan society's socio-cultural values and way of life by building new housing totally alien to the Libyan way of life and its physical environment requirements. An example is the construction of a new settlement named "campo dei Bedouin" in 1935, to which all the Bedouins living in tents on the outskirts of the city of Tripoli were transferred. By the time Libya gained its independence in 1951, family size had increased, the death rate had declined and people married at a younger age. These factors compelled the Government to recognise housing, especially in the urban areas, as a major problem. However, at that time Libya was in no position to solve its this problem, due to the lack of technology, labour skills and perhaps, more importantly, a lack of economic resources.

The discovery of oil in the late 1950's improved Libya's economic status, but most of its people still lived in inappropriate housing or were homeless. The government of the time attempted to solve this problem. In 1966, the Ministry of Housing was created and the first housing programme in Libya, Idris Housing Project, was started. However, these efforts were ineffective because of a misunderstanding of the nature of the problem and except for a survey done by Doxiadis in 1964 no detailed study or research of the sites, housing design, environment of the areas and needs of the Libyan society was performed. As a result no relevant information was available about housing requirements, size, type, socio-cultural needs, e.g. the users need for security and privacy. Moreover, housing policies were poorly co-ordinated, houses were started and left unfinished and some were built for influential people, e.g. a cabinet member or member of parliament, who considered the project to be for their own benefit (Almuakkaf, 1979).

When the Al-Fath Revolution took over in 1969, one of its main goals was to improve the living conditions of the poor people. Without the intervention of the Government such improvement was beyond the reach of these people. It was determined that the poor should be provided with safe, healthy and liveable homes. In addition, the aim of the Revolutionary housing policy was to help low-income groups secure housing by a variety of means, e.g. renting, purchase, or building. These groups included the homeless and victims of overcrowding who had been neglected by both the old regime and the private sector. This concern led the Revolutionary Government to create a new project, the **"urgent housing projects,"** in early 1970.

> "The state has endeavoured to provide an adequate house for each family in terms of quality, size and standard, taking into consideration the potential and planned changes of the economic and social conditions, as well as customs and traditions and hence their expected impact on the design and shape of the dwellings and the construction of their component parts."
>
> (Libyan Ministry of Housing, 1976 quoted by El-Fortea, 1989:8)

The Libyan Arab Jamahiriya, like many developing countries, has developed an ambitious plan for housing production in order to meet a fast growing demand. Millions of pounds have been spent on housing and urban improvement projects in Libya. Unfortunately, the most recent housing has designed in keeping with the international style rather than with local characteristics.

Since its opening up to the world, the rapid changes in Libya, have made it hard to determine priorities for its people and their changing way of life. For example in the housing sector the Ministry of Housing has been using Western technology in the construction of large scale housing schemes. To execute these large scale projects, foreign experts were needed and foreign labour grew to 200.000 in 1980, about 41.3 per cent of the total labour force in the country (Attir, 1983). The majority of these housing units were apartments in high rise buildings, a form of housing not suited to Libyan family socio-cultural values such as the need for privacy, security and prestige.

The new development of cities and villages in Libya, has affected both people's socio-cultural values and their way of life. Traditional building techniques, design and materials have been neglected in favour of conventional modern building techniques, design and materials. "The rapid development of cities and villages in Libya, has affected traditional settlements" (Abd Al-Sayyad, 1976:19). However, the development of a more traditional housing program is extremely difficult, if not impossible. Only a few authors have mentioned the unsuitability of modern "European architecture". Rapoport (1969:22) has stated: "European housing, although inappropriate to the indigenous ways of life, was nevertheless popular among a certain class in North Africa because it reflected modern life and a raised sense of social status".

The Western model of urbanisation is best represented by housing and the mode of urban expansion. The attraction of the Western way of life and concept of development has drawn Libya's attention away from developing a clear understanding of its traditional residential built form and the value of its continuity. It has been forgotten that a poor residential area creates an adverse physical environment which affects people's feelings, self-esteem, social standing in the community and their relationships with family, friends and neighbours. The environment has become a reflection of Western values in design and architectural features.

A large number of schemes in Libya have been built by foreign companies, designed in the international style, using sophisticated technologies. Such schemes do not take into account the characteristics of the indigenous habitats and settlements. Most modern buildings do not provide for the current needs of Libyan society and the result has been a failure to provide for these needs. A large percentage of the change in contemporary housing has been in the dwelling design and the interior space (i.e., the users closed balconies, divided rooms, made new openings, built extra space on roofs, built tents, etc.).

Traditional settlements in Libya reflect man's response to the harsh desert environment, the need to sustain the social organisation, and respect social and cultural traditions. Thus urban dwellers have a similarly strong desire to replicate the formation of such settlements and the characteristics of indigenous habitats. This has played an important part in shaping the character of traditional Libyan cities and towns. As far as people are concerned they are part of their community or neighbourhood. The separation of sexes is one of the most important characteristics of the Islamic city. This fact is obvious in both the house design and the city plan (Nour, 1979). However, despite the changes in family activities, structure and the way of life as a result of urbanisation and modernisation, the

segregation between sexes has not been affected. The relationship between the interior and exterior spaces has also remained the same. The interior spaces are arranged in a way that allows male visitors and guests easy access without disturbing the household, particularly the female members. The family remains an important social institution and so determines the design of the built environment.

From the author's previous research on "The Impact of Climate on Housing in the Libyan Desert" in 1992 it was recognised that the typical, standardised, modern housing schemes which have proliferated in all Libyan cities are unable to meet the climatic conditions, particularly in Ghadames city. However, there is proven evidence that from a climatic point of view, the traditional settlements were designed to provide maximum protection from climatic stress (Shawesh, 1992).

The appropriateness of new housing schemes and traditional houses, in terms of socio-cultural values and way of life, has never been evaluated or studied. Except for a survey carried out by Doxiadias in 1964 no detailed study or research about Libyan housing exists. Some research performed during the last decade studied the housing problem in general but made no detailed study of the impact of socio-cultural values on housing design. The phase of development during recent years provides a rich source of phenomena in need of research and study.

1.3 Research Questions

In the foregoing discussion of the traditional and contemporary housing design in Libya and its appropriateness for its users' social life, it was necessary to examine the users' perception of their housing design, both traditional and contemporary, in terms of its

response to their social life needs. Hearing about people's experience offers a better understanding of the suitability of the two types of residence, and enables the identification of the variables that meet the users' social life needs. The intention is to point out the features of the residential area that reflect their users' socio-cultural needs within the context of settlement, neighbourhood and dwelling in Libyan society. Four important, interrelated questions that will be addressed in this study are:

1) What are the important socio-cultural values that influence the built environment?
2) What do people feel about their traditional housing design?
3) How is the contemporary public housing regarded?
4) Which type of housing is preferred by local inhabitants?

These questions are answered during the course of the research, and a complete picture is given of the suitability of the two kinds of housing, traditional and contemporary, through the perception of the people who live in them.

1.4 Aims and objectives

Building a home is a cultural phenomenon: its form and organisation are greatly influenced by the cultural view of its builders (Rapoport, 1969). Through generations, each nation has developed its own unique housing design, responsive to its socio-cultural values and environment. Even within one nation, various regions have evolved their own particular style. This confusion of architectural styles became evident in Libya where three different geographical regions contribute three different customs and building forms.

Libyan housing policies have made the immense leap from traditional practices to modern ones in a very short space of time. This research intends to contribute towards modelling and demonstrating suitable housing design for Libyan society which meets the socio-cultural values and needs of the country. It will specifically examine traditional and contemporary housing in terms of residents' satisfaction relating to the socio-cultural values of Libyan society. For this purpose, the study will be investigate the following related objectives:

An historical review will be undertaken of the traditional and contemporary housing, in terms of suitability, life needs of inhabitats and cultural conditions not only in Libya, but in different areas of the world that have experienced similar circumstances. This review seeks to identify the drawbacks and deficiencies that prevent the current housing delivery system responding adequately to human and environmental needs and to find out how such deficiencies might be avoided or at least minimised.
Through selected case studies, this thesis will:

1) Investigate the degree of people's satisfaction with traditional and contemporary housing related to their socio-cultural values within the settlement, neighbourhood and dwelling. This investigation will also provide an adequate understanding of the factors contributing to the disparities in housing provision and the level of dissatisfaction with contemporary housing.

2) Investigate the various characteristics and common features in both traditional and contemporary houses: to identify people's housing preferences which will successfully meet their socio-cultural value requirements. This will be emphasised in the dwellings under investigation and it will be shown how they relate to Libyan society.

3) Above all, the aim will be to define housing problems and all their contributory factors in order to develop a framework for Libyan contemporary housing. Based on this study's findings recommendations will be made which will assist the different government ministries and agencies in future housing programmes.

1.5 Research methodology

A comparative approach will be employed in this study based on two kinds of settlements, traditional and contemporary, in Ghadames city (in Libya). The research will combine evidence from documentary sources and fieldwork. This evidence will be collected by the following methods:

1) Documentary study by means of a review of the relevant literature with references to the design process in traditional and contemporary housing and socio-cultural values. It will include a review of the theoretical background in identifying the study framework and relevant techniques for the study. There will also be a brief review of housing in Libya during the pre-colonial period, the Italian colonisation and after Independence, in order to understand the theoretical background to the socio-cultural values and their impact on housing design. The documents and data will be obtained from both published and unpublished sources.

2) Empirical studies will be carried out to investigate traditional and contemporary housing in the case study area (Ghadames city), and to measure the degree of user satisfaction with both housing forms related to their socio-cultural values within the dwelling, neighbourhood and settlement, and to identify housing preferences that successfully meet their socio-cultural values. Data are mainly collected by the following methods:

(I) A physical survey. This survey will be mainly concerned with the physical aspects, types and layout of dwelling, neighbourhood and settlement.

(II) People's perceptions. These consist of two components: (a) an unstructured interview survey; in this section data will be collected by means of personal interviews and open informal discussions with some residents and several key figures from the city of Ghadames and the Ministry of Housing. (b) a face-to-face structured questionnaire; two types of questionnaires will be used: first a users' satisfaction questionnaire to obtain the data required for measuring the degree of user satisfaction with a dwelling, neighbourhood and settlement, and second, a questionnaire dealing with inhabitants' housing preferences.

1.6 Reasons for choice of Ghadames as a case study area

Ghadames city is an example of a Libyan city where there is a living bridge between traditional and contemporary architecture. A close study of the ancient oasis town of Ghadames will be made in order to give a more complete picture of traditional Libyan architecture. It represents a unique traditional human settlement and is considered to be one of the most interesting of Libyan cities, fortified by a wall and consisting of about 2,120 dwelling units, mosques, markets and public spaces. It also represents a clear expression of an attitude that was held by society. The old town of Ghadames is one of the oldest cities in Libya, and its traditional buildings remain well maintained and lived in. It also possesses a state built new settlement. There are 616 housing units in this project which was designed and built by a foreign company. They were built in the 1980's as the ideal solution to the housing demand in the city. The buildings and structures of the new dwellings are not all of an appropriate design principle. As a result, they failed to

satisfy of human needs because they did not respect the social needs and traditions of the residents. This provides the opportunity to investigate the traditional and contemporary housing response to Libyan society's values. Hence Ghadames is a suitable case study for investigating the socio-cultural values' impact upon housing design in both traditional and contemporary houses. It provides a clear chronological section of the evolution of housing response to the users' living requirements in the settlement, neighbourhood, and house in particular.

The city of Ghadames is located in the Libyan Sahara desert and forms a part of the sub-region of Gharyan, one of the five sub regions of the Tripoli region. It lies 630 km South-west of Tripoli, close to the junction of the border with Algeria and Tunisia, situated at an altitude of 350 meters above sea level.
Ghadames is on one of most important trade routes, connecting central Africa with the Mediterranean sea coast. The city was an important place, providing food and water for the travellers. All these factors make Ghadames the most important of Libyan cities. In fact, Ghadames was inscribed on the World Heritage list of historic monuments by UNESCO in 1987. More detailed information will be presented in chapter five.

Ghadames was chosen by the author in 1992 to study the impact of climate on the housing in the Libyan desert. Through this study it became evident that there was a need for housing improvement and the obvious shortcomings caused him enough concern to search for answers. The accessibility to the site by the author enables him to get the information easily. Moreover his previous study on the area for his MIHSc. provides a solid background of data including maps, charts and statistics.

1.7 Research structure

This study will be composed of eight chapters. Chapter one serves as an introduction, and presents the problem, ideas, aims and objectives, and arguments that provide the basis for this research. Chapter two deals with the country profile and the general background of the housing development, typology and its design philosophy during the pre-colonial, Italian colonisation, and post Independence periods. Chapter three discusses the relevant literature and presents the theoretical basis of concepts related to socio-cultural values and their impact on the built environment. It also deals with some approaches to the socio-cultural response to the environment. Chapter four will review the research methods and measurement techniques adopted during the fieldwork for investigating people's satisfaction with their traditional and contemporary housing in terms of meeting their socio-cultural needs. It will also explain the approach to the study, the survey strategy for investigation, and the techniques which will be adopted for collecting data and the analysis strategy. Furthermore, it will outline the problems that will face the researcher during the fieldwork. Chapter five introduces Ghadames City as the context within which this investigation will be carried out. It gives an overview of the general picture of the study area, its geographical, historical, economic setting and housing characteristics. Users' evaluation of their housing environment, traditional and modern, related to their socio-cultural needs will be presented in chapters six and seven. The findings of the study (which type of housing users prefer), the recommendations and conclusion will be discussed in chapter eight. Figure 1.1 presents the structure of the study.

THE STUDY

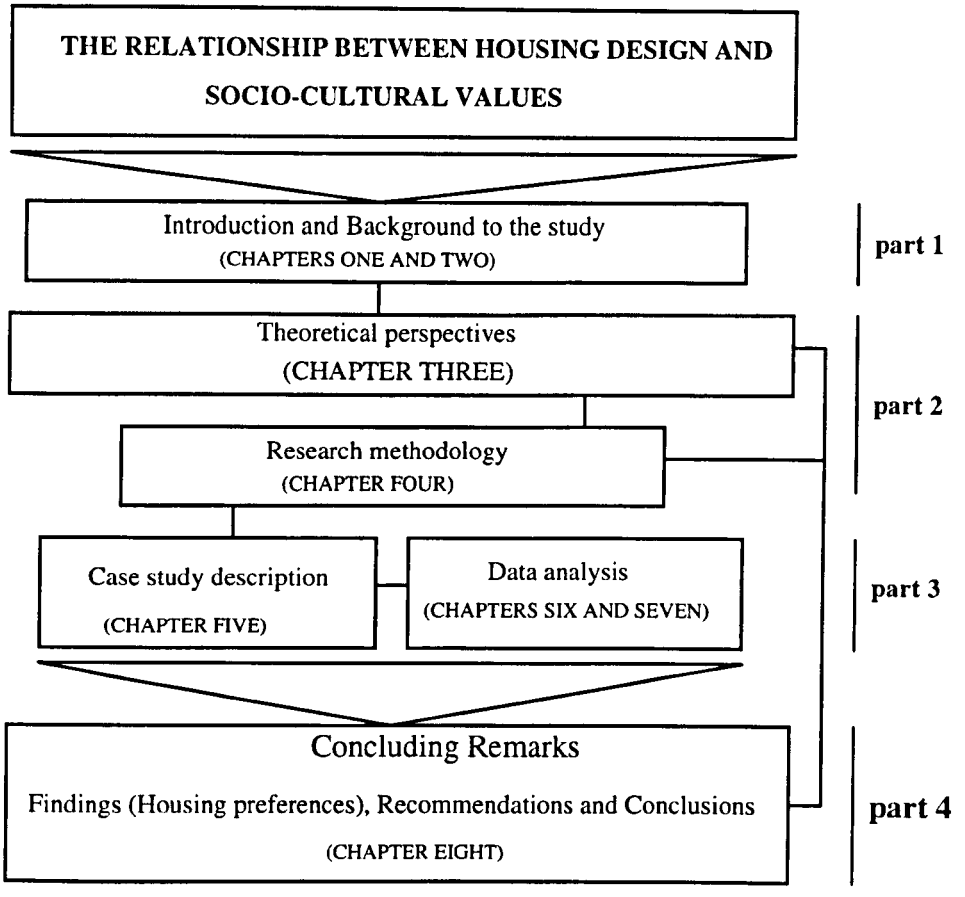

Figure 1.1: Shows research organisation

Source: Fieldwork, 1995

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CHAPTER TWO

CHAPTER TWO

HOUSING IN LIBYAN ARAB JAMAHIRIYA AND ITS CONTEXT

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2.1 Introduction

Historical, economic and political developments as well as geographical location have played an important part in housing design, development and transmission of cultural life in Libya. However, the diversity of economic conditions in Libya before the colonial and oil eras have not been significant enough to produce a wide variety of dwelling unit type. The uniformity of such conditions and the unity of religion, privacy and security have led to the development of a traditional Libyan house style, which displays the same basic principles and consists of the same basic elements throughout the country. Nevertheless, geographical differences, arising from topography and climate, as well as from foreign influences, have always been present, producing variations in building materials, methods of construction and use of the dwelling.

The objective of this chapter is to briefly set out the historical and geographical context for the development of housing in Libya. In addition, this chapter will focus on a study of the public housing characteristics and socio-cultural needs in traditional, pre-colonial period, before the country was influenced by Western architecture and industrial technology. It will also focus on housing built during the Italian colonisation and the last modern development of housing after Independence. This chapter deals with the general background of housing development, typology and its design process in Libya during the three stages previously mentioned in order to understand the harmony between the users and their dwellings. That means the way in which religion, privacy, security and customs of people are reflected in their social organisation and in the dwelling design process in three different regions (Tripolitania, Cyrenica and Fezzan). Details of the components of traditional and contemporary dwelling and their characteristics will be investigated in depth in chapter five.

2.2 Country Profile

2.2.1 Historical background

Libya is an Arab country, located in the northern part of Africa. The name Libya has existed for more than two thousand years (Joffe, 1989). The Greeks first applied the name "Libya" to all north Africa, except Egypt, and the adjective "Libyan" to all of its indigenous inhabitants. Though ancient in origin, present-day Libya came into existence after the Italian rulers were defeated on January 1, 1943. Although, it was not until recently that the whole area was formed into a coherent political unit. Hence, despite the long and distinct histories of its region, Libya must be viewed as a region still developing national consciousness and institutions. However, the strategic location of Libya has made it subject to many historical, political and economic upheavals.

This region named Libya has been colonised for over two and a half thousand years by different peoples, the Phoenicians, Greeks, Garamantes, Romans, Byzantines, Arabs and Turks. Historical, social and economic developments have affected the way people have built their homes. The most significant cultural, and historical changes occurred when the Moslem Arabs, led by Omar Ibn-al-As, conquered Libya in 642 A D (Warfelli, 1976). They brought with them their religion, language, architecture, cultural values and ways of life; as Wright (1969:79) pointed out: "The Arabs had brought with them little more than their Religion, the language, and their influence on the people...offered a faith and with it a social system and culture, that they could completely absorb". Islam soon started to establish roots throughout the region and within a century or two it had been accepted in the cities, villages and oasis towns and proved to be the strongest influence ever to touch Libya. Islam is more than a religion, it is a culture, a way of life. Through time, every Libyan nomadic and semi-nomadic settlement was affected by the socio-religious aspects of the Arab culture and Islamic values. Thus, it can be argued that Islam not only affected

the formation of the urban fabric of large cities in Libya but also left its effect on the small towns and villages of the region.

From 1551, until the beginning of the twentieth century, Libya was a province of the rising Turkish Empire which had emerged as the principal power in the Middle East and Mediterranean area. In October 1911, Italian troops invaded the Libyan coast and from 1912 to 1943, Libya was under Italian colonial rule. The modern period began new construction, transportation and industry were started to serve the need of the colonisers. The period between 1943 and 1951 was considered as a transitional period, under which British and French powers administered the country as caretakers, following Italy's surrender to the Allied powers in World War Two.

In October 1951, the federal Monarchy of Libya was declared an independent state and named the United Kingdom of Libya. However, Libya was still effectively colonised by the American and British. In 1969, the monarchy was overthrown and the country became a free democratic Arab Republic, with sovereignty in the hands of the people, and named the "Libyan Arab Republic".

In 1975, the political system was again changed. This step was taken to overcome the bureaucracy which hindered direct access between the executive and the masses (figure 2.1). The name of the country was changed to "The Socialist People's Libyan Arab Jamahiriya".

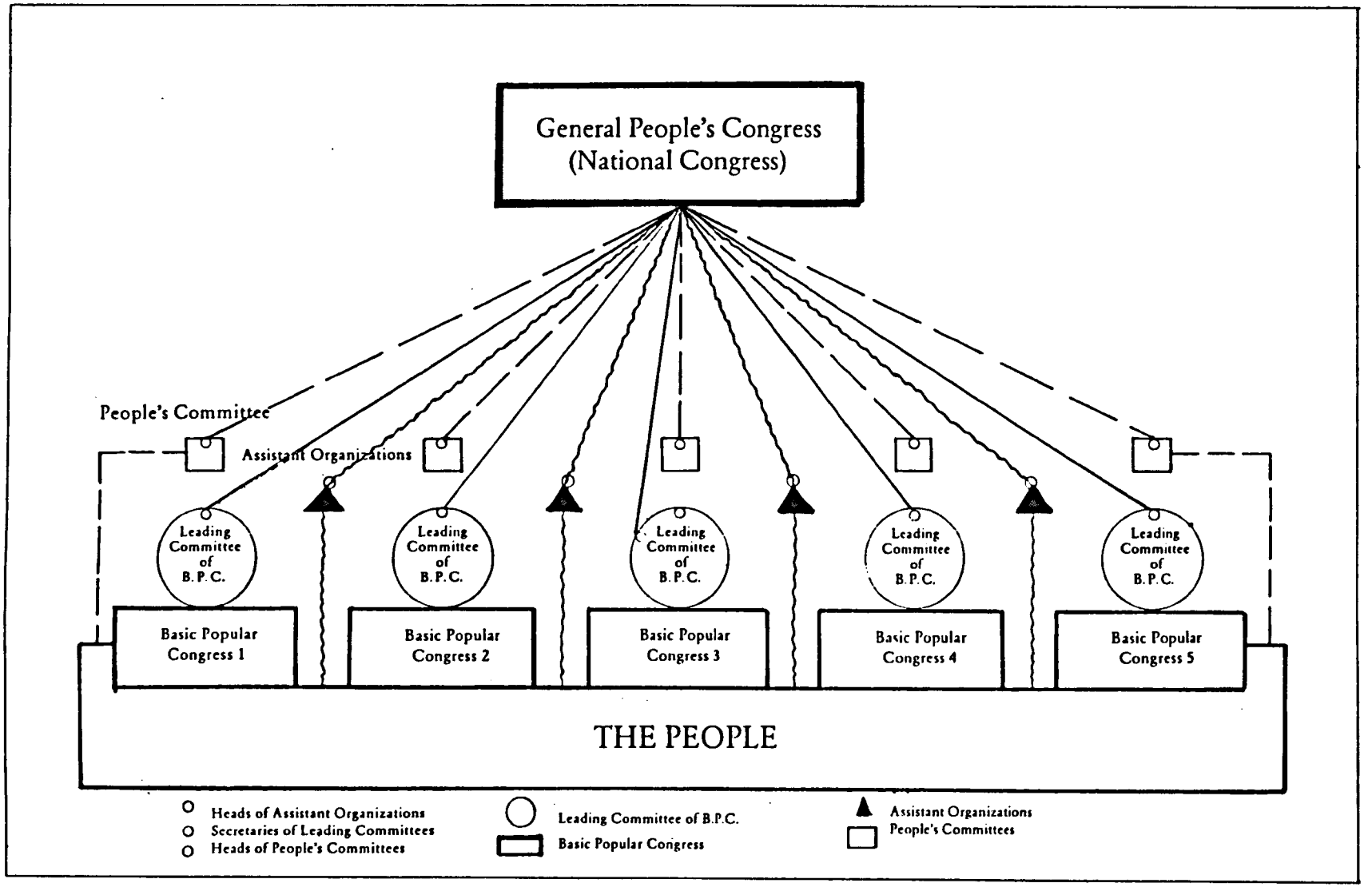


Figure 2.1: Political system of Libya

Source: Ministry of Foreign Affairs (1976)

2.2.2 Economic Background

At the time of Independence, about 80 per cent of the population was engaged in agricultural activities. This agriculture depended largely on rainfall which was unreliable. Libya was one of the most poverty-stricken states in the world prior to 1960. Due to the fact that the Libyan agriculture economy was restricted to less than ten per cent of the national territory. Libya had to depend on foreign aids, mainly from the United States and Britain. In 1954-1955 this aid reached $26 million, more than half of the country's estimated national income (Higgins, 1953). In 1960, the sudden discovery of crude oil south of the Gulf of Sirte, changed the country's economy from a poor one, depending on agriculture and foreign aid, to a strong oil based economy. After 1961 Libya particularly ".....enjoyed almost twenty years of constantly increasing national revenues derived from crude oil exports and latterly from oil products" (Allan, 1989:66). The per capita Gross National Product (G N P) increased from L D. 52 in 1958 to L D. 1700 in 1970. Consequently, Libya moved from a capital deficit to a capital surplus nation and from an aid recipient to an aid donor. In the Middle East crisis of 1967, Libya joined Kuywat and Saudia in extending aid to Jordan and the United Arab Republic, to help these countries normalise their economies after the war. Libya was committed to $8 million annually (Elkabir, 1972).

Libya's economy is completely dependent on oil. This can be seen by comparing the economic resources of the country over time. Before the discovery of oil, agriculture amounted to 93 per cent of these resources (Hajjaji, 1967). By 1966, about 60 per cent of the G N P emanated from the oil sector and later, in 1970, this reached 85 per cent. Government revenue from oil increased over thirty-fold, from $40 milliom in 1962 to $1.38 billion in 1970 (Elkabir, 1972).

2.2.3 Geographical background

The geography of Libya can be seen as the principal determinant of the separate historical developments of Libya's several regions. Libya is a small country in terms of population, compared with most of the other countries in Africa or the Middle East. It is located in central north Africa, and bounded in the north by the Mediterranean Sea, on the south by the Republics of the Sudan, Chad and Niger, on the east by the Arab Republic of Egypt, and on the west by Tunisia and Algeria. It lies between latitudes 18 54 N, and 33 10 N, and between longitudes 9 58 E, and 25 E. Libya occupies an area of about 1,790,400 square kilometres, which is more than seven times the total area of Britain. Approximately 96 per cent of the area is covered by the Sahara Desert (figure 2.2) which affects the distribution of population. Only four per cent of the land is a suitable for living and is located near the coast in the north part of the country and in some oases in the desert area. Thus the population in the north part of the country grow more rapidly than in other parts and the state seems to be more concerned with this area, which is more attractive for housing development and gives more benefits economically than the other areas. The major proportion of the Libyan population lives in this area and so settlement, trade and industrial activities are developing in the northern part together with the major city markets, shopping centres, offices and other public services.

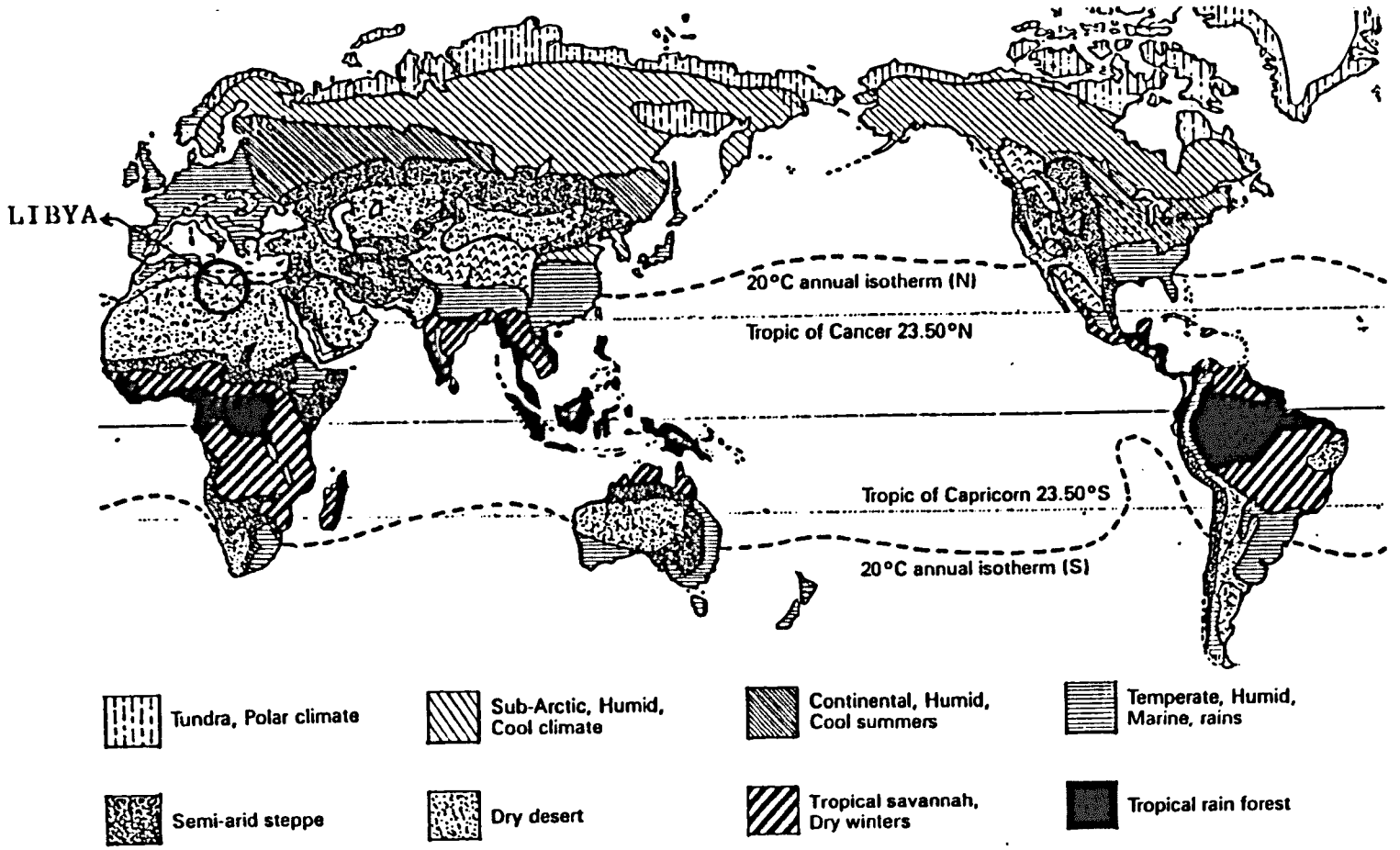


Figure 2.2: Location of Libya within World climatic zones

Source: Oliver (1987)

2.2.4 Population Growth

The Libyan population decreased between 1900 and 1943 because of the economic situation and the Italian colonisation of the country. By the Second World War the population was estimated at 900,000. After the Second World War, particularly once the country got independence in 1951, the population started to increase. However, since the Al-fateh Revolution of 1969, the population of Libya has increased rapidly and now has a growth rate of more than three per cent per annum, one of the highest in the world. There are numerous reasons for this rate of growth, but the most important appear to be; firstly, the improvements in general health standards resulting in lower infant mortality rates, and secondly, an increase in immigration into the country, including the return of Libyan émigrés. For the foreseeable future, population growth is likely to remain high, as health services and economic conditions continue to improve and there is a relatively youthful population. In 1984 the population reached 3,637,500 millions (figure 2.3). Only in the long term is it probable that the rate of growth will decrease.

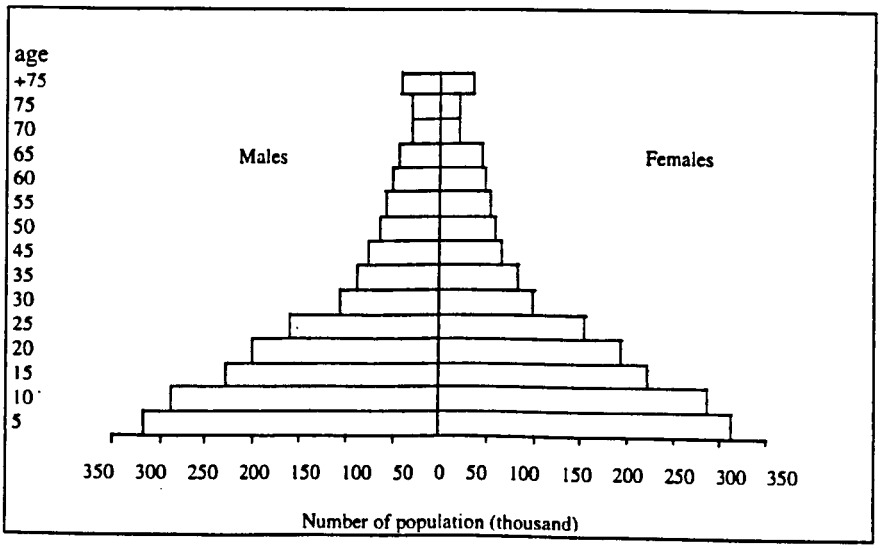


Figure 2.3: Libyan population growth, according their age and sex in 1984

Source: Ministry of Planning (1984)

2.2.5 The Socio-cultural Environment

Libya is a country of unique heritage and diverse historic riches. Due to the strategic location of the country, it became a meeting place of ancient civilisations and cultures, which is reflected in its society and architecture. However, the Libyan people, after the introduction of Islam, have been considered one nation and one culture. One of the strongest links joining the people together is the Islamic religion. The Muslims' social life is usually based on the ancient traditions and teaching of the Qur'an. The individual is responsible to the family, and the family to the tribe or community. In this society, it is quite acceptable to the group that the older persons have the greatest influence and respect, and that the individual is obligated to relatives and kinsmen. It is also still common for grandparents, parents and their children to live together in the same dwelling unit. This is more interesting as together they share happiness and sorrow, and meet the events and accidents of life.

Compared with modern socio-cultural life, Libyan society is most conservative. The separation of sexes, privacy and social security are still the most important characteristics of Libyan dwellings. The dwelling is designed in such a way that a visitor, on entry, has to pass a doorkeeper and there is an angle in the entrance passage that prevents any outsider from gazing into the dwelling. A locked door from the inner courtyard gives occasional access to the women's portion of the dwelling. People use the residential environment as a means of social control, particularly with respect to achieving individual interaction or privacy. That has given them a great affinity with nature and their surroundings. This fact is emphasised in the space organisation and utilisation pattern in the dwelling which will be investigated in depth with special reference to Ghadames city.

2.2.6 The Climate of Libya

The Mediterranean coastal areas are characterised by hot, dry summers and rainy, mild winters. In winter the desert region has very little rain, with warm days and cold nights, while in the summer the climate is hot during the day and mild during the night. However, 96 per cent of Libyan territory lies in the Sahara desert and that influences the climate of the country. If one takes a closer look at the old houses, in places such as Ghadames, one suspects that these old houses, built from simple local materials, may be more comfortable to live in under the harsh climatic conditions, than most modern houses, even though they have were built hundreds of years ago.

The climate of Libya has influenced the native architecture and allowed the building of flat roof tops and courtyards, which are considered major social and recreational spaces in the Libyan family life, especially in the large cities such as Tripoli. It might be wise to study how people lived in the past and how they overcame their problems to the past, and to build upon this knowledge for the future rather than to seek entirely artificial and new solutions for age old problems. Unfortunately, the present state of design of built environments, particularly in desert dominated regions such as Libya, display an alarming ignorance of the natural and workable solutions of the past.

Libya can be divided into four climatic regions as follows:

(1) the subtropical, Mediterranean climate, with an average rainfall exceeding 70 mm. per year and in the coldest month having a temperature of between 8 degrees centigrade and 36 degrees centigrade. The largest percentage of people in Libya live in this zone where the climate is more comfortable. It covers the whole Libyan coastal area.

(2) the subtropical semi-arid, or steppe region, with a mean annual temperature of 30 degrees centigrade and average rainfall of 40 mm. per year. This zone consist of the major upland of Libya; it lies to the west and south of Tripoli and south of Benghazi. It is the coolest zone in the country with temperatures between 16 and 19 degrees centigrade in winter depending on location and altitude. In summer, temperatures range between 26 and 32 degrees centigrade.

(3) the subtropical, arid or desert region, with a mean annual temperature of over 40 degrees centigrade and less than 15 mm. of rainfall per year. This zone covers the largest part of the country and lies to the south of the other two zones. Fewer people live here because of its difficult desert climate. For more details see appendix 1.

2.3 Traditional housing: a typology

In order to understand the typology of the traditional Libyan dwelling, it is necessary to look at the historical development of the country. These developments affected the Libyan's dwelling in terms of typology, space organisation and acharacteristics from one period to another. On the architectural level one can identify four distinct styles that were introduced into this country during the Classic and Islamic periods. These styles can be recognised in diverse archaeological and standing monuments scattered over Libya. In the case of traditional dwellings, there was an amazing resistance to change from the adapted and valid house form from one period to another. The analysis of the process involved and the forces that shaped the architecture will be presented in later chapters. This section will present the dwelling development during the foregoing periods in relation to socio-cultural aspects and form characteristics.

According to historical development and geographical location, Libya is divided into the three regions; Tripolitania, Cyrenaica and Fezzan. These different regions were colonised by different countries until the Roman period when the country was united (figure 2.4). However, most traditional settlements in Libya were formed in the fertile coastal regions, parts of the northern mountains and oases in the desert region were also settled traditionally. The typology of dwellings was influenced largely by socio-cultural values, ways of life, climatic conditions and historical evolution and development. The population of Libya during foregoing periods was divided into settled people, semi-nomads and nomads. The nomads and semi-nomads lived in non-permanent/ permanent settlements, using portable shelters, and moved from location to location seasonally. The settled sector of the population lived in stable settlements which varied mainly in terms of size or building materials, according to the climatic condition or geographical location.

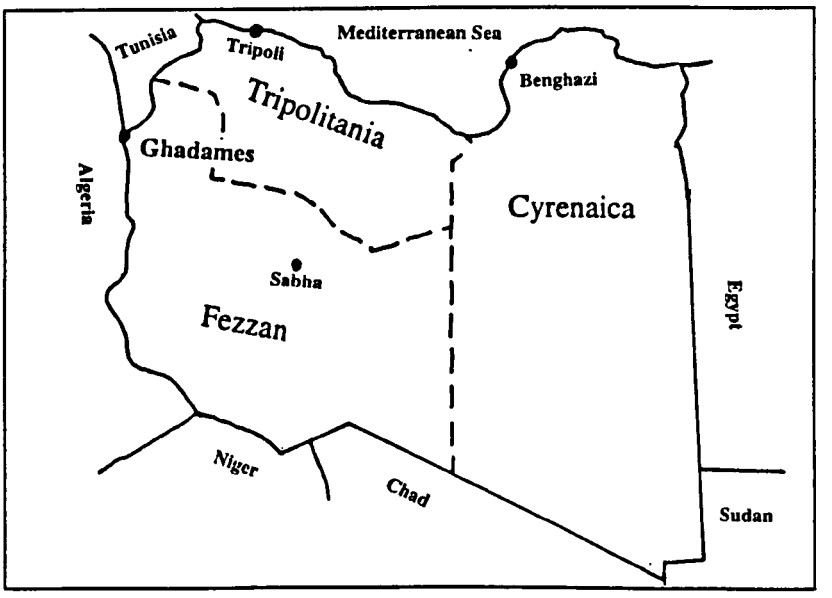


Figure 2.4: Traditional regions

Source: Nelson (1979:3)

2.3.1 Classical period

The history of Libya's dwellings goes back as far as the first millennium BC. The Phoenicians, the Greeks, the Garamantes and the Romans came to Libya and left their enduring imprint upon the country, particularly in terms of housing and massive masonry works whose remains are strewn along the Mediterranean.

2.3.1.1 The Phoenicians

Contacts with the Tripolitanian coast began near the end of the second millennium BC. According to Wright (1969) the Phoenicians were the first people to settle in Libya during this period, when the country was economically very poor, with limited natural resources. People were pastoral nomads (Bedouin) living on meat, dates and milk, using portable shelters, types of which are still used in some parts of the country. One of the important features of this simple shelter is its ability to modify the extremes of temperature which can occur. It creates a cool space during the summer season and warmth for the cool season. It is made from animal fur which is available locally. It is interesting to note that this type of simple dwelling still successfully meets the Libyan family's socio-cultural needs, particularly in terms of privacy. Its interior space is very flexible, for example when the family has a visitor, they can divide the interior space into three spaces, one for family use, one for kitchen space and the other for the visitor's use, by using a curtain as a partition (figure 2.5).

There is little evidence remaining of the private courtyard type of house built during the time of the Phoenicians at either Lepties or Sabratha. This means that there is no clear evidence to show exactly what the Phoenician dwelling was like as only a few ruins remain (Shaiboub, 1979). However, the Phoenicians established the foundation of three commercial cities; Oea (Tripoli), Labdah (later Leptis Magna) and Sabratah, in an area

which is known collectively as Tripoli or "three cities" which developed during the Roman period.

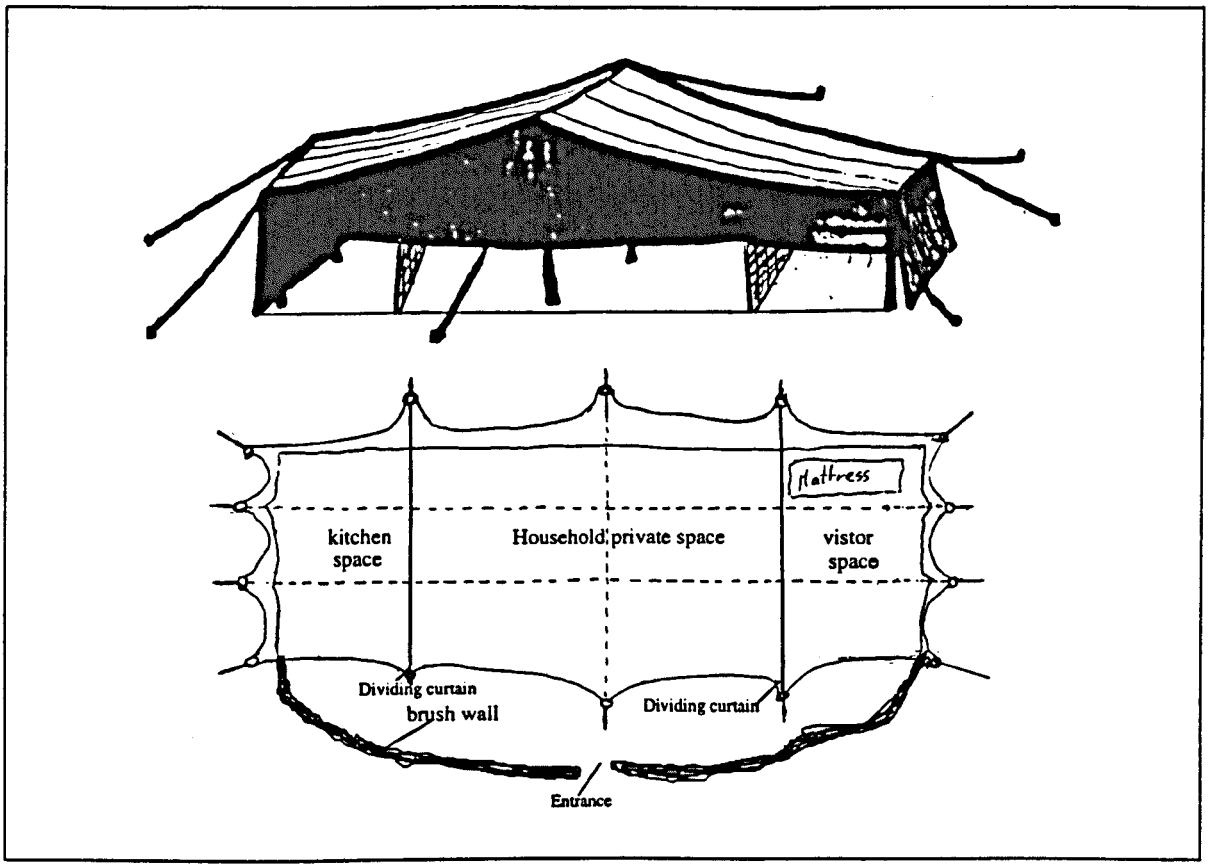


Figure 2.5: Clear indication of separated quarters made available in Bedouin shelters

Source: The Author (1994)

2.3.1.2: The Greeks period

The Greeks were the first settlers in the eastern region of Libya, Cyrenaica. In the first half of the seventh century BC. Cyrenaica was dominated by the Greeks and within 200 years of Cyrene's founding, four important Greek cities were established in the area: Barce (Al-Marj), Hesperides (later Berenice, present-day Benghazi), Teuchira (later

arisione, present-day Turkish) and Apollonia (Susah) (Nelson, 1979). During this period the country, like the ancient world generally, underwent great changes in architecture and political, social, economic and artistic life.

The Greek private houses are far less well known than their public buildings in Cyrenica, because their were a society in which public life was more developed than private life. When the Greeks turned from public life to private life in the Hellenistic period, their houses became more **luxurious;** the best remains of private houses of the late Hellenistic and Roman periods are those at Sidi Krebish and Tocra (Shaiboub, 1979). The predominant house form in these sites was the courtyard type. The courtyard house in Libya can be traced through Hellenistic remains up to the 3rd century BC. and consisted of a number of rooms surrounding a central yard or atrium. The remains show the thickness of walls and stairs used in this type of housing, which consisted of more than one story, with "porticoes" running along one side, or around the whole courtyard (Essayed, 1982). The courtyard house that was introduced to this part of north Africa during the Greek and Roman periods went through an adjustment and adaptation process, borrowing from the primitive (Berber) in order to fit the physical, environmental and socio-cultural conditions of the area (Hassan, 1982). During this period, defensive elements such as town walls with castles (qsur) or watch towers, and gates were also found, particularly in large cities or towns. Since the introduction of Islam settlement types and patterns have gone through many changes related to the new religion. However, there is no evidence of Greek influence in Tripolitan cities, although the Hellenistic influence on the Romans, who dominated the whole country for a long while, was considerable.

2.3.1.3 The Garamantes

The Garamantes were an ancient Hamitic people who inhabited the Libyan Sahara from the time of Herodotus until the Roman period of North African history (Blunsum, 1968). The people who lived in this part of the country were mostly Bedouins, removed from outside interference, scattered over a wide area, speaking their traditional tongue and the local dialects of Arabic, as well as living in portable houses such as tents (figure 2.6). This type of dwelling provided comfortable space in terms of the cruel climate and fitted the socio-cultural needs. It served their needs in giving protection and privacy. Only in the fertile oases, which could sustain a fixed agriculture, could a stable population be found. However, these Sahara Desert settlements were not like those in the coastal or mountain areas and remained unaffected by colonisation. For example, Ghadames architecture has its own style which still exists and successfully fits the present socio-cultural needs which will be investigated in depth in chapter five. It is also interesting to note that these people in places such as in Ghat, Sabha and Ghadames, had strong customs that still exist today such as women being heavily veiled when appearing in public. Thence, Libyans in this area are very conservative.

The Garamantes established some small settlements in this region, Fezzan, the most famous being Germa. It was the ruling capital of the desert region until Augustus made an expedition with Cornelius Bablus in 19 BC. against the Garamantes and captured Germa (Hassan, 1982). During this period, the settled habitations of the Garamantes comprised of one or more apartments and their walls were plastered with coloured lime or gypsum. Excavations have revealed that old Germa had good systems for water supply and drainage, and the streets were shaded by trees. Excavations have shown forts and houses without any clear evidence about their type as well as Roman cisterns dug later (Shiaboub, 1979).

Figure 2.6 Dwelling typology during Garamantes period (Irregular walled courtyard houses in Fezzan)

Source: Bukamur (1985: 198)

2.3.1.4 The Romans

The Romans started to take over the country from 146 BC. and there were significant changes, particularly in housing. They paid great attention to Leptis Magna, Sabratha and Oea (Triopli). Tripolitania developed rapidly from a small Phoenician commericial town to a main Roman city enjoying the rights of many other Roman colonies. In dealing with domestic architecture, the Romans copied the Greek courtyard houses because they were well suited to the relatively complex Roman civilization and appealed strongly to Roman taste. However, this type of housing was more appropriate for the indigenous people's socio-cultural values, environmental and surroundings needs. There is some evidence still standing, particularly in the Leptis Magna or Sabratha areas, of the type of private

courtyard house found in the old city of Tripoli. "The excavations of luxurious peristyle houses and villas in the suburbs of Leptis Magna, Sabratha, Oea and Ptolemais are examples of the summer residences used by the upper class members of the society and were produced by a characteristic style of life" (Essayed, 1982:55). These existing courtyard houses consisted of two stories containing an internal portico and open court, usually with a palm tree or a fountain in the centre, and a cistern which collected water from the roofs or a well to one side (figures 2.7 and 2.8). It is clear that these houses reflect socio-cultural patterns as well as historical and environmental factors. Moreover, there is evidence from the Side Krebish (Benghazi) excavations and Tocra that courtyard houses were in use at least from the second and third centuries BC., as mentioned in the previous section. The remains of this type of courtyard house have revealed some of the most exciting examples of the art and culture of ancient times (Blunsum, 1968).

From the foregoing discussion, it is clear that the courtyard house was the most common dwelling in north Africa, particularly in Libya. Despite the differences in geographical location and climatic conditions, the same dwelling design is found over the whole country. The only differences are in the type of building materials, space organisation, size of dwelling and location of the courtyard. For example, in the rural areas, dwellings usually consist of only one story with a covered courtyard, whereas the urban dwellings have more than one story with an open courtyard.

In terms of social environment during the classical period, most of the population were nomads and spent most of their time in the Sahara Desert following their flocks. They would only spend a short period of the year in the semi-nomad camp around palm groves. People were subdivided into tribes, tribes into clans, often clans into subclans, and subclans into villages. Tribes were known among the sedentary populations as 'Quabilah'. Besides the blood ties which increase the social solidity among the different clans,

Besides the blood ties which increase the social solidity among the different clans, marriage was often a common occurrence between the members of the tribe. This method of social organisation still exists in Libyan society and must be taken into account when designing houses.

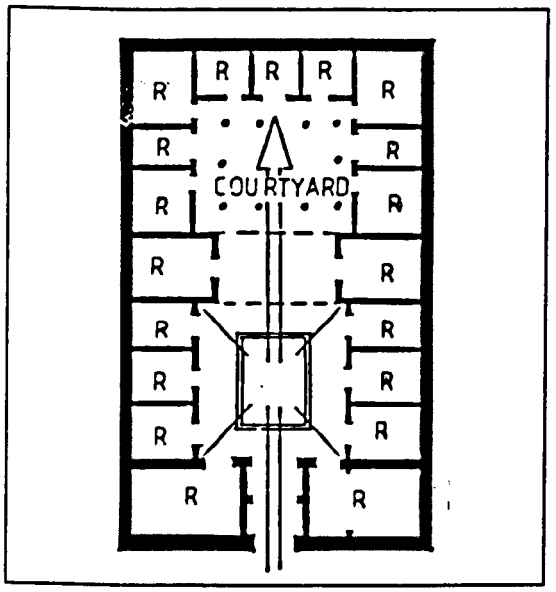


Figure 2.7: Dwelling typology during Roman period in Tripoli

Source: Shiaboub (1979: 449)

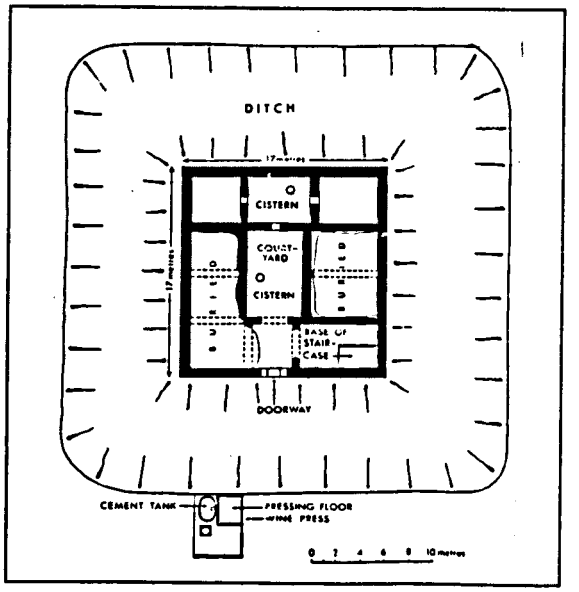


Figure 2.8: Dwelling typology during Roman period in Tarhuna

Source: Shiaboub (1979: 421)

2.3.2 The Islamic period

2.3.2.1 The Arab period

In the 7th century Libyan society underwent significant change particularly in its socio-cultural values. The whole country followed the new aspects of life, language, religion, privacy and patterns of living which have characterised Libya ever since. The fundamental principle of Islamic law is drawn from the Quran and involves issues of

for visual privacy, particularly for shielding female members from the eyes of male strangers. Building heights and the location of doors and windows, which involved air rights, were important factors, but the right not to be overlooked was primary (Hassan, 1982). A clear distinction between public and private space is emphasised in the Libyan dwelling; this strong differentiation between the public, semi-public, private and semi-private character of the residential neighbourhood dwelling design is a reflection of the socio-cultural requirements for sex separation and security from outside the kin's groups.

The new socio-cultural values formed the traditional Libyan dwelling which displayed the same basic principles and consisted of the same basic elements throughout the country. The Arab-Muslims did not bring a new housing design to fit these new aspects of life, but adapted the previous courtyard. "It is primarily a Mediterranean design, found also in Greek and Roman atrium houses, and even in ancient Egyptian houses" (Serageldin, 1980:45). The Arab-Muslims developed it to make it more suitable to the new socio-cultural values and local environment conditions (figure 2.9).

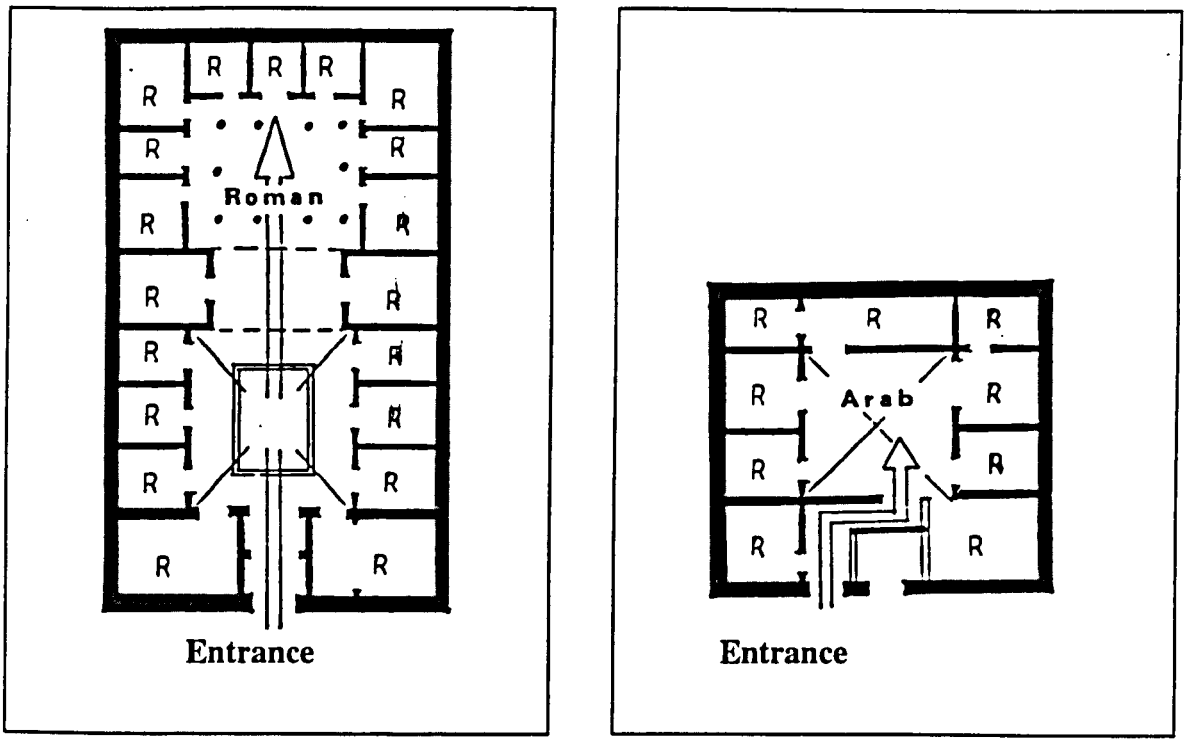


Figure 2.9: Dwelling typology during Arab period (comparing with Roman dwelling)

Source: Shiaboub (1979: 449)

2.3.2.2 Ottoman period

It is a mistake to believe that the type of courtyard housing widespread in Libya was designed during the Turkish period, or that it belonged to Turkish architecture. Most of these dwellings were re-built in the 16th century during the Turkish occupation of Libya on the earlier debris of Arab houses, resulting in irregular shapes (Shaiboub, 1979). The Turks, like the Arabs, also developed this type of house relation to Islamic values. The courtyard house plan, shown in figure 2.10 is the result of this ancient history and shows how the dwelling fitted Libyan society and local environmental needs.

People of a given culture are primarily bound by a common worldview of ideas and choices and by a set of socio-cultural values and rules that produce their life style and manners as embodied in their image of their environment. For example, there is a clear

difference between a built environment in Western culture and a built environment in a traditional Arab Islamic culture, such as Libya, where issues of socio-cultural needs, particularly privacy and religion, were seen in the separation of public and private life. This characteristic affected the use of spaces, the dwelling settlement system, and the streets system, which represented a special space organisation for different purposes, according to the different needs and desires of groups or individuals. That meant that the choice of the traditional Libyan dwelling type was not a random phenomenon but was related to many factors, including historical, environmental, social, cultural and economic conditions.

The present traditional dwelling in Libya developed during different periods similar to most traditional houses in Tunisia, Algeria and other Middle Eastern Islamic countries. Tunisian and Algerian models are more developed and richer in ornamentation due to the presence of the richer Islamic cultural traditions and crafts which had developed in those countries. Old Tripoli (Medina) provides good examples of houses representing the traditional dwellings of the country. These traditional houses have a rectangular or quadrangular plan with one or two floors and a courtyard in the middle, surrounded by rooms which open off it. The rooms are often divided into back niches and central space to avoid unsuitable long areas. These niches (Sedda) are used either for sleeping or for sitting. Most of the houses of this type have a staircase in the courtyard that leads to the roof terrace or to the second floor. Wells and fountains are a common feature in traditional houses, particularly in Tripoli. Courtyards are often square. The degree of prosperity of the household can be judged by the quality, size, amount of decoration and the type of building materials used. Significant elements are arched entrances, simple coloured plaster and ceramic tiles which may cover part of the courtyard walls, coloured glass and tiles which are often used for window decoration as well as the fountain in the central yard: Musharabia are simple and common, being rectangular in shape and

projecting about 40 cm, comprising a simple wooden grille or decorated gypsum screen for privacy. All these elements demonstrate the richness of the house and its inhabitants.

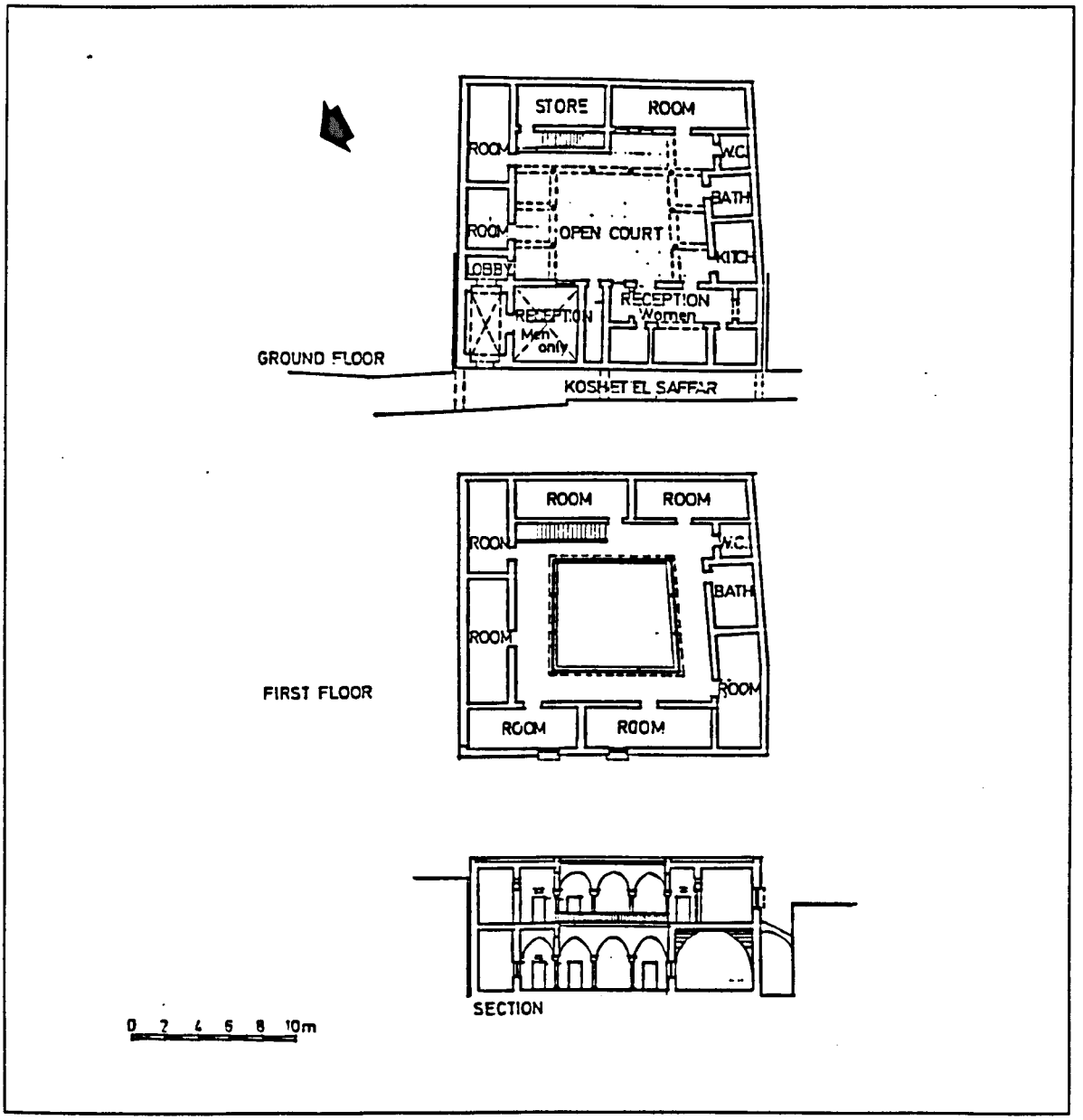


Figure 2.10: An example of dwelling during Ottoman period

Source: Essayed (1982: 67)

The existing traditional house plan in general consists, of a covered ground floor living area for different social functions. The main entrance is located adjacent to the living room (Marbua) where the inhabitants receive their guests. The traditional architecture was arranged so that the main entrance was built to avoid disturbing the privacy of the female members of the household. There was an open space (central courtyard) for summer parties and religious festivals, as well as to allow the women of the house to carry out their daily activities in complete security and privacy. The service area, kitchen and stores which were the women's domain were also located on the ground floor. The second floor was used mainly as a sleeping area and as a private space for the family members. It usually had a long space on both sides with recesses for sleeping called 'Sedda'.

The organisation of interior space in developed courtyard houses related to users' socio-cultural values. These values such as religion, privacy, security, relations with neighbours and the surrounding environment conditions, dictated the arrangement of the interior space as well as the relationship between interior and exterior spaces. The domain of the men and guests was the living area and the domain of the women the private areas such as the kitchen and sleeping areas.

In most cases traditional houses were built by their owners, who were completely involved in the process and took full resposibility for financing, designing the houses, choosing materials, and organising construction. The houses were constructed mainly from local natural building materials, and had thick load bearing walls of sandstone, limestone or mud brick, whichever was available. The roof, which usually was flat, was built from joists and flat timber, if available, or from palm trunks covered by compressed small stones mixed with lime.

2.4 Housing Situation during the Italian colonisation

During the centuries in which Libya was occupied by the Phoenicians, the Greeks, the Garamantes, the Romans, and lastly by the Arabs, there were few changes in the structure of the local dwelling. It was accepted by and adapted by the occupying powers in accordance with the requirements of the socio-culture and the environment. However, when the Italians took over Libya in 1911, they intended to create a new European type of housing, totally different from the local architecture. They created a European city with piazzas, wide streets, modern shops, and multi-storied buildings. They achieved their purpose by replanning the Arab houses, shops and markets, making them conform to an Italian style, and planning the vacant land to suit their aims. This policy created an adverse situation for the local people particularly during the Fascist regime.

During the Italian colonisation, 1911-1943, many attempts were made by the Italians to influence the Libyan society's socio-cultural infrastructure, with the intention of demonstrating their power locally and internationally. They were dominant in every way possible, including in architectural style and urban development. They totally rejected local socio-cultural values as Hassan (1982: 256) states:

> "While the country was occupied by the Italians, the indigenous population and their physical habitat and environment were considered either primitive or alien to the new "superior culture" which had assumed sole domination of the country".

The Libyan people suffered greatly from this policy in which the local socio-cltural customs were dismissed to open the way for domination by what was called the "superior culture" of Italy, particularly in the fields of education, economy, politics, and architecture. This fascist attitude had to be adopted by all architects who worked in Libya during this period.

Early in the Italian colonisation the land was taken from the local people and gives to recently arrived colonists. This resulted in the deportation of local people from their settlements in many parts of the country, particularly along the coastal line and in oases such as Tripoli and Ghadames. The local people were ignored because of the need to house immigrant families. These Italian families introduced new building designs and techniques and caused the breakdown of the local system of settlements.

The development of house building during the Italian colonisation can be divided into three periods: the first is the period of initial occupation to 1913; the second period continued until the rise to power of fascism in Italy in 1929; and the third ended in 1943 when Italy lost Libya as a colony in the Second World War.

In the first period, 1911-1913, when Italy still did not control the whole country, only a few simple army houses were built and some administrative buildings on scattered coastal sites. During the second period the Italians still did not have full control over the country and there was hostility in some areas. They adopted a strategy of establishing some co-operation with local people in an attempt to control the conquered land. They had no wish to start destroying or rejecting the local architecture and tried to learn from the French experiences in North Africa by trying to give new life to the old Arab residences (figure 2.11). Through architecture, they hoped to be seen as paternal, caring and not rejecting the traditional; they took the position of trying to unite differences in the interests of everyone (Fuller, 1992) .

However, the third period was completely different as it was influenced by the fascist regime in Italy which was anti Libyan:

> "The Italians generally considered themselves superior to the Libyans, and retained their separate linguistic, cultural, and religious identity. They prevented Libyans from entering their social and professional circles through various forms of discrimination, such as forbidding them entry to certain public places"
>
> (Hahn, 1981:49).

During this period traditional houses and settlements were left to die and their inhabitants lacked the political and economic power to save them. For example, most of the wall of the old city of Tripoli was demolished and a new one constructed for military purposes to enclose an area of 18.9 km^2. Within the new wall the old Tripoli became a small neighbourhood of a big European style city (Essayed, 1982). Colonists tried to make Libya an "Italian country" and planned to settle 100,000 colonists by 1942 and one-half million by the 1960 to counterbalance the native population (Wright, 1982).

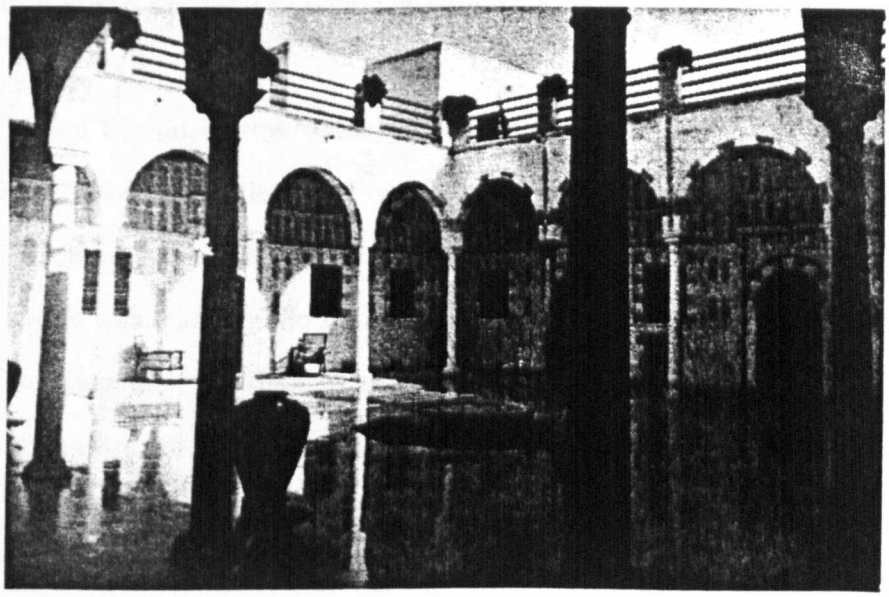
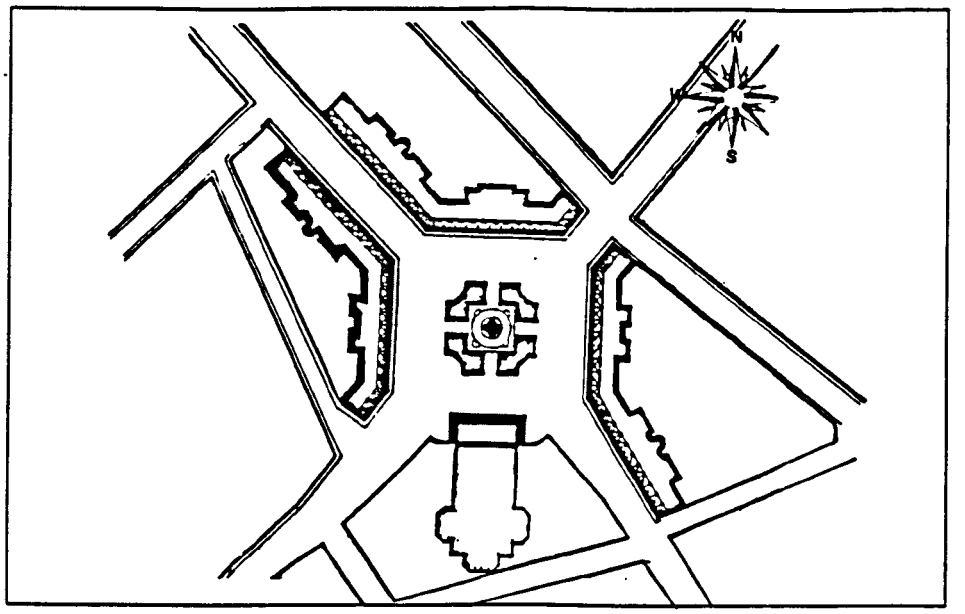


Figure 2.11: Typology of Libyan villa in the beginning of Italian colonisation

Source: Fuller (1992:222)

In 1938 the Italians started a programme of colonisation in Tripolitania and Cyrenaica, by taking over land for new houses and villages. In Tripolitania about 1,752 single structures were built in keeping with European forms and design. In 1938-1942 they constructed 538 urban dwellings for Italian settlers which varied from single houses to apartment buildings, all designed to suit the Italian socio-cultural needs and life style. These new settlements introduced new components such as piazzas and squares with a road network, designed in accordance with the Italian building style. An example is Maydan El Giazar in Tripoli (figure 2.12). The Italians dispensed with the traditional courtyard, replacing it with an outdoor garden, and the traditional latticed windows gave way to open windows and balconies. The private family area also ceased to exist in the Italian style house and the entrance usually led directly to a single corridor with the rooms arranged on both sides (figure 2.13). Moreover, new extensions were built on to the pre-colonial settlements; the traditional quarters were restructured and parts even destroyed to allow the construction of new roads, piazzas, squares and public buildings.

In terms of social life during the Italian period, modernisation in Libya was intimately connected with European civilisation. For the first time Libyans were exposed to modern schools and teaching system. The Italians built schools throughout the country, the main purpose of which was teaching the Italian language and culture. Many Libyans opposed the idea of sending their children to there schools, fearing that they might lose their religious faith and Arabic culture (Elkabir, 1972). Although the Libyans resisted this policy, the social structure of the population changed. The modern Italian social class system was dominant because the Italians commanded the means of power, wealth, and status. The Italians represented a distinct upper, governing class.



Fiugure 2.12: Maydan El Giazar Piazza

Source: Municipality of Tripoli (1970)

Generally, the main effect of the Italian colonisation on social structure was that it changed the basis of social classes by altering the economy and political power. The modern sector became dominant, and this led to changes in Libya's direction.

Many Italian writers supported the concepts and philosophy of the colonial Architecture; Cabiati in (1936) discussing the colonial architecture, wrote:

> It is logical that the issue of decoration and expression of form must be a secondary one and the important issue must be to think of immediate needs, as has already been demonstrated in the first period of the colony. The pioneers built very simple and small edifices to house the various colonial activities which showed respect for the local indigenous architecture. Now, we must review our experiences. On the subject of architecture we ought to understand that building development should be "impressive", a reflection of the Fascist policy that should be implemented immediately in most of the centres of "Africa oriental".
>
> (quoted by Hassan, 1982:244).

Figure 2.13: Dwelling typology during the Italian colonisation

Source: The fieldwork, 1995

Cabiati went on to say that architectural development must assert Italy's maturity as a colonial power and express the vital importance of its civilisation. He believed that the French attempts in North Africa to generate an "Arabicized style" were a complete failure; he warned that the Italians, like the French in Tunisia, Algeria and Morocco, did not at first have a clear understanding of their commitment. He argued that their experience during the first colonial years in Tripoli and Cyrenaica revealed a naive assumption that the Italian culture could borrow, more or less intelligently, from the local forms of society and still impress upon the population a belief in Italian superiority. Moreover, Cabiati attacked all those who followed the course of adapting local forms of Libyan construction and he supported the fascist program for the development of a colonial architecture. His guiding principle was the Roman Empire, which had imprinted

its culture on the landscape of all its conquered territories through a uniform and monumental public architecture.

It is clear from the foregoing discussion that the colonial power showed a total commitment to identifying the built environment with colonial culture rather than local culture. However, in general, most of the moderate and rational architects of the colonial period became converted to the validity and rationality of local architecture and urban formation in Libya, especially in meeting environmental and climatic requirements, but the issue of socio-cultural needs remained a matter of conflict between two different cultures. That conflict, arising from the politics of the time can be clearly seen by writers after the end of the colonisation period such as Bono (1960: 231) who wrote:

> "The typical modest popular architecture of Libya is identified with spontaneity, genuine simplicity, and an analogy to the indigenous architecture of southern Italy and Spain and other regions of North Africa. An architecture of pure whiteness, brightness, rich in volume with sparse but not ugly decorations, it is in harmony with the landscape and the environment, and responsive to climatic conditions. The adherence to the needs, customs, and life necessities of the population, and the consistent and rational use of available materials show a sensitivity which underlines the fundamental aesthetic value of this architecture".

Bono went on to acknowledge that the traditional architecture, free of ideology or imposed design, had similarities to ancient Roman architecture in that it reflected a sincerity of intention. Thus Bono expresses an appreciation for the deep importance in Libyan architecture of socio-cultural influences. However, the issue of socio-cultural needs still remains a matter of modern housing policy in Libya. In the following section we see how greatly the evolution of Libyan urban structure was affected by (colonial) European ideology and principles and how their application has resulted in the social, physical and spatial problems of present habitation and housing forms.

2.5 The Housing Situation After Independence

In the last three decades, traditional Arab socio-cultural factors have been heavily influenced by Westernisation. Population pressure and industrialisation are putting socio-cultural property in grave danger. The rush to accommodate modern technology (rather than evolve modernity) causes a disregard for the old cities, which often results in their rapid deterioration or outright destruction. For example, owing to the new industries and demand for oil, many people are crowding into the cities and foreign workers are moving to the suburbs. Many Medians, which still contain historical and aesthetic artefacts as well as being the key to the Muslim socio-cultural heritage, are becoming slum areas

Following Independence and the discovery of oil, a great variety of new building and construction systems and techniques have been imported from the industrialised world. As a result the local architecture techniques have been affected, as well as the socio-cultural values of Libyan society which were interpreted vaguely, without an appropriate study or research by those in power. As this trend of building new housing projects that are heavily dependent on imported technology and design continues, the assessment of the public interest of these projects remains a task of great importance. Examination of some of this new public housing is an important part of this study.

2.5.1 An overview of the new public housing approach

After Independence the housing situation remained inadequate in quality and quantity. Bukamur (1985) argued that most Libyan cities witnessed a large number of shanty towns surrounding the planned areas (table 2.1). The first attempt to improve housing conditions was carried out when Libya was a ward of the UN from 1948 to 1951. The first major urban plans attempted in Libya since independence in February 1963, was the town of

Barce (El Marj) in Cyrenaica, which had been devastated by an earthquake. A comprehensive plan was drawn up for the construction of a new town, four kilometres to the west of the ruined site and was published in 1964. The main features of the new town were fundamentally Western in origin; detached houses with front gardens wherever possible, neighbourhood centres with a range of facilities and a network of wide roads (Blake, 1979).

Table 2.1: Number of housing by types in 1954

Type of Housing	Tripoli	Township of Tripoli	Benghazi	Township of Benghazi	Sebha	Total
Villa	5,384	488	329	106	0	6,312
Houses	17,192	64,048	11,400	13,171	9,847	115,658
Tents	172	24,527	311	26,469	460	51,939
Shanties	5,993	41,142	2,356	5,345	2,802	57,638
Caves	113	4,105	4	1,233	7	5,468
Improvised	897	188	403	321	3	1,812
Vessels	4	5	3	1	-	13
Collective	559	87	73	94	6	819
Total	30,319	134,590	14,879	46,740	13,125	239,653

Source: Bukamur (1985: 21)

The second notable attempt by the Government to improve housing conditions after Independence was made in 1963 , when a western company named Doxiadis Associates was called on by the Government to carry out a study of the housing conditions and problems, and to suggest suitable policies and programs for housing development in the country. In 1964, the Ministry of Housing and State Properties was created to combine all housing agencies, and to formulate, develop, and implement the housing programs. In the same year, the Industrial and Real Estate Bank was established to serve as a housing mortgage bank by providing long-term credit to citizens building their own houses. In 1966 the Idirs Housing programme was introduced by the government on a national level

with the sum of 400 million Libyan pounds, allocated to build 100,000 dwellings over a period of five years, at a rate of 20,000 units per year[1]. Western ideas appear to have been introduced wholesale and indigenous forms abandoned uncritically. Other features of the new public housing schemes ignored the socio-cultural values of the Libyan family or community. These values still exist and will do so for a long while, and must be taken into consideration in housing schemes. It is also essential to take into acount the geographical, climatic, topographical and some social variations, if satisfactory housing is to be achieved.

In 1969, the second five-year plan came into existence, but was halted by the revolution of September 1, 1969, when it was replaced by new revolutionary and progressive plans. According to Bukamur (1985) at the time of the revolution about 220,000 Libyan families were in urgent need of housing. For this reason, from its early days, the Revolutionary Government (RG) has played the main role in solving the housing problem especially for low-income groups, by establishing family and housing allowances and subsidies and by reducing the selling price of government houses and land. The RG planned that each family should have the opportunity of owning an adequate home. This concern led the RG to create a new project, called the "urgent housing project," begun in early 1970.

The RG housing policy was aimed not just at low income groups, but at all groups, especially the middle income group, living in either unsuitable houses or in huts. The main goal of this policy was to house all Libyan people by giving them the opportunity of owning an adequate home, and so raise the standard of living of the whole Libyan population. The RG recognised not only the need for adequate housing for all citizens, but also the need for public facilities such as water, electricity, sewage, parks and

[1] In 1968, "the government decided to delay the starting date of the second five-year plan by one year." See Ministry of Planning of Libyan Arab Republic, National Accounts of the Libyan Arab Republic, 1962-1972 (Tripoli: Directorate General of Economic and Social Planning, 1972:2).

security. The housing program consisted of 386,000 units in the period of 1969 to 1985 (Table 2.2 shows the housing development from 1954 to 1985)[2]. According to the study performed by the Ministry of Housing (1989) on the future housing needs, 50,000 dwelling units must be build per a year (table 2.3 which indicats the future number of houses required). However, foreign consultants and construction companies still design and build these housing schemes. The typology of these public housing units are multi-storyed blocks of flats. Examples are shown in figure 2.14 . Essayed (1982: 48) has summarised the situation concerning new public housing, with special reference to Tripoli as follows:

> "Most, if not all, projects fail to a greater or lesser extent to respond to the needs of the user, particularly where large families are involved. The essential requirements of adequate space are rarely considered. The traditional, culture and social background of the residents are note taken into account. Climate and local building materials are disregarded.

Kezeiri's survey (1984) of housing conditions in different towns in Libya, made the following criticisms of current housing conditions:

1) The need for more privacy in the design of houses.

2) Dissatisfaction with the physical and social cultural conditions.

3) Bad location in terms of accessibility and environment quality.

4) Social problems created by locating people from different social backgrounds together.

5) The need for maintenance and repair.

The absence of traditional housing experiences makes it extremely difficult to give a clear picture of housing construction activities. As mentioned above, it is becoming apparent that problems of an environmental and social nature are also being created. There was a

[2] Ministry of Planning, Proceedings the conference for Housing and Building Materials; Evaluation of needs and development of construction methods. (21-23 January, 1989:13).

sharp break in the continuum of the evolution of urban development following the rejection of architectural heritage by Westernisation. There is a shortage of studies and research about the nature of housing required and users' needs, the need for skilled manpower and the lack of knowledge and experience. It is important to achieve these components and their absence has affected the performance of housing agencies for many years.

Table 2.2: Housing development during of 1954-1985

Year	Family size	Number of dwellings	Source
1954	4.5	129,000	Doxiadis Associates
1963	4.5	189,000	Doxiadis Associates
1964	4.5	200,000	Doxiadis Associates
1973	5.8	300,000	Ministry of Planning
1980	6.2	396,000	Ministry of Planning
1984	6.4	555,000	Ministry of Planning
1985	6.4	586,000	Ministry of Planning

Source: Ministry of Planning (1989:13)

Table 2.3: Estimated number of housing needs from 1985-2000

The region	No of dwelling required	%	dwellings/ per a year
Tripoli	469 000	61	30500
Benghazi	208 000	27	13500
Sabha	41 000	5.5	2700
Elkhalij	51 000	6.5	3300
total	769 000	100	50 000

Source: Ministry of Planning (1989)

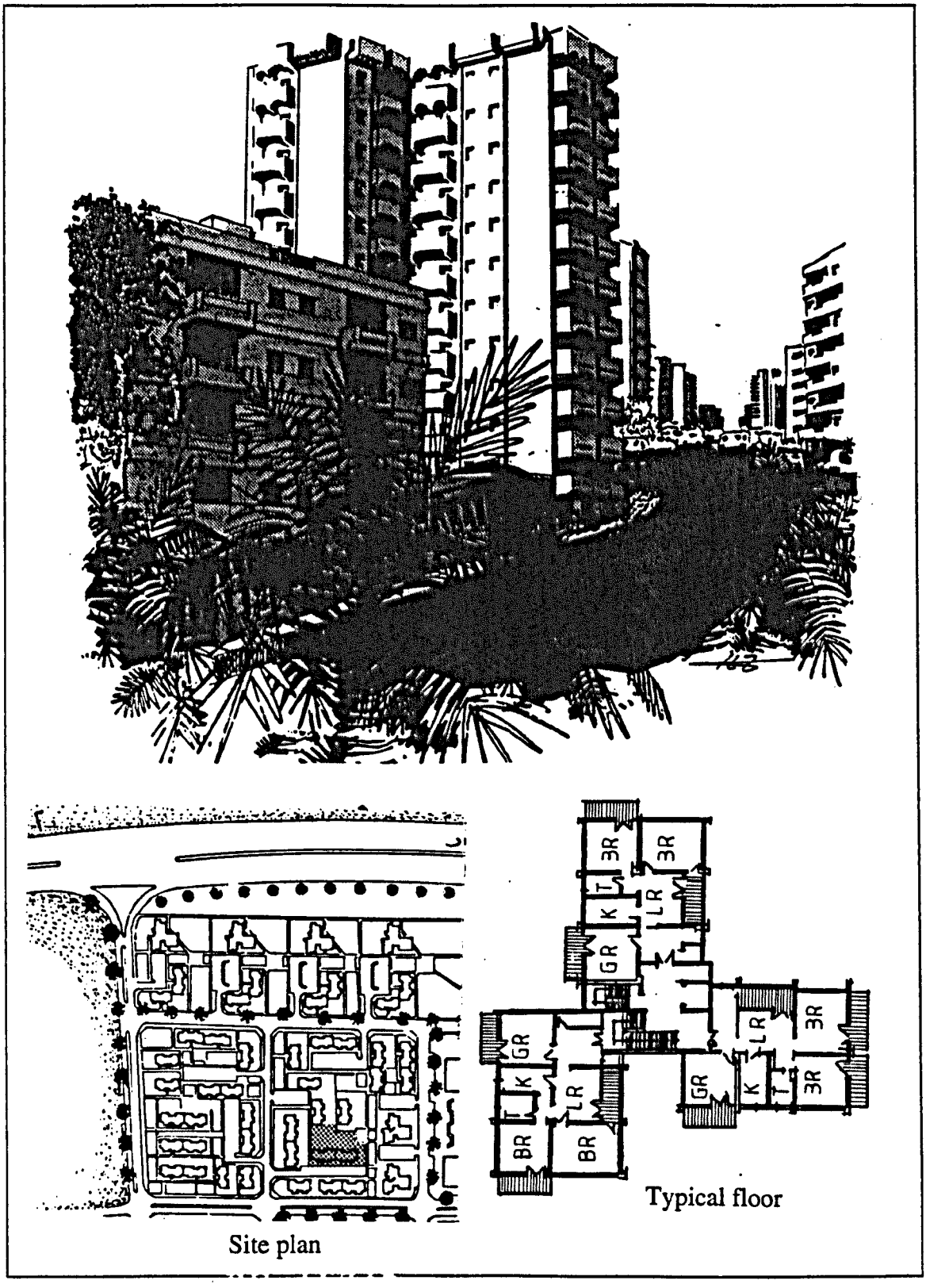


Figure 2.14: The contemporary housing design and site planning techniques.

Source: Fieldwork, 1995

2.5.2 Public Housing and Socio-cultural Environment

"Although thousands of housing units and scores of schools and hospitals have been built and the standard of living in the traditional sense has risen considerably, it is obvious to the observer that a loss in the intangible 'quality of life' is accompanying these changes. This is demonstrated by the numerous urban environmental problems that keep hammering at the fine settlements in Libya".

(Zarrugh, 1976: 49).

One of the significant problems of public housing design in Libya is that it did not meet the users' socio-cultural needs. This is because the new public housing is similar in many aspects to the European style which ignored the importance of Libyan socio-cultural values, such as privacy, secuirty/safety, religious facilities, and prestige. For example, Libyan custom is does not allow the housewife to be seen by male visitors to the household. The position of women plays a very important role in shaping the traditional house design, however this message was ignored in the contemporary dwelling. People who benefit from the public housing schemes usually carry out the physical improvements of their units according to their own wishes. They add crossed steel bars to the ground floor windows, add some brick layers to the fence at the front of the courtyards and, in some cases, close the balconies with brick walls or other light materials for privacy and security. A lot of changes also take place in the interior space. The users usually open and close internal walls according to their need for privacy or add the space of two rooms together to make one large space (Bukamur, 1985). According to the UN Housing Design Advisory Report (1969) on the conditions of public housing in Libya, there was a set of recommendations about changes in dwelling design, preparation of standards, suitability, building code and advice on research to be carried out. The advisor listed what he then thought were the common criticisms of the design of the housing projects:

1) New public housing schemes showed a complete a lack of privacy.

2) There was a lack of architectural organisation of various components i.e. visitor space, bedrooms, kitchen and toilet.

3) The climatic conditions were ignored.

4) Substandard specifications and workmanship.

5) Within the same covered area, a compact well laid out plan is possible.

6) Improper location with regard to local housing demand.

7) Uniform design for all regions in Libya.

Unfortunately these criticisms were never taken into account in the public housing sector.

In Essayed's survey (1982) on Libyan public housing, several observations were made about the deficiencies in the public housing programmes in terms of insufficient attention given to the socio-cultural needs:

1) The architects had ignored the user's socio-cultural values which were still valid, and by imported Western patterns which caused housing to become inappropriate for a Muslim society like Libya.

2) Most public housing schemes were designed before the sites were decided and without any system of feedback about type, size and suitability of dwelling units.

3) Design approaches, location circumstances, site implications and local requirements showed a complete misunderstanding of social and environmental aspects of housing.

Previous surveys and observations about the new public housing programs were adopted by the Government and believed to be the most effective way to ease the housing shortage. However, it is clear that the causes of the negative effects can be related to the

design process. Decision-making about the public housing design and site planning of these projects was extremely centralised and was limited to a single, personal decision without any opportunity for criticism and team work. Users were accommodated without playing any effective role in the decision-making process of architectural and site planning. The other important reason is that the design was not the result of the normal phases of research, programming, design review and evaluation research (Zeisel, 1981). The type of problem that arose was that new public housing did not meet the socio-cultural values and the physical environment requirements of the users. The problems experienced by residents will be examined in the following chapters, particularly chapters seven and eight.

2.5.3 The Impact of the New Housing Development on Traditional Housing Conditions

Almost no city in Libya, or in other Arab countries, has remained intact in the face of the tremendous expansion of the urban population and the adaptation, on a large scale, of foreign urban forms and modern technology. The urban environment has changed rapidly, both physically and socio-culturally. The original Arab-Islamic urban forms of Tripoli, now found in what is left of the Medina, have been largely demolished or encircled by the expanding urban areas, with housing and streets laid out according to the Western design patterns and a host of new elements transplanted from Europe and other foreign countries on the grounds of modernism. Beaumont(1976: 217) summarises that in the following paragraph:

> "Even where the original town has largely survived, it now represents a mere fraction of the built-up area, usually accommodating a small share of the total urban population. New and distinctly alien elements have been added to the townscape-villa developments, flats, shops, garages, industrial estates, railway sidings.....In most towns and cities today the characteristic skyline of domes and minarets is overshadowed by one characteristic of almost any Western city with high-rise apartments, chimneys and office blocks. Stone and mud have been largely replaced by bricks and concrete as building materials and indigenous architectural forms have almost entirely disappeared. The centre of gravity has shifted from the old towns to the new, and, as urbanisation proceeds, an increasingly high proportion of the population is living in a western style of urban environment, no longer distinctly Islamic, Persian, Turkish, or Arab"

The social and spatial organisation, and the changes that have occurred in most Arab cities, have been described and discussed in many studies, particularly those of individual cities conducted by geographers, such as Misurata in Libya by Blake(1968), Khartoum in Sudan by Hamdan(1960), Amman in Jordan by Hacker(1960), and Housing in Tunis by Lawless(1986). All these studies are concerned about the problem of organising the interior space of the house to conform to the social life needs of the occupants. These needs were met in the traditional house design but the contemporary house design takes no account of them.

At present, the old city houses have been left without any maintenance as temporary shelter for the poor, most of whom are recent rural migrants. The people here live at higher densities and are characterised by lower levels of income and literacy, and higher fertility rates than the average city inhabitant. In Tunisia, "46 per cent of the families today live in one room" (Ben Mahmoud and Santilli, 1974:260). In old Medinas, houses accommodate several families instead of one. Even in traditional housing which perfectly meets all the users' needs and values, people are suffering from a lack of maintenance and no safety. These cities have become places for crime because inhabitants have come from different places without any control by the states.

The trend to use European models and architectural training which completely ignores Arab architecture, results in completely inappropriate designs, while traditional houses are demolished. The harmony and charm of the old cities are disturbed with the introduction of high rises, which conflict with the socio-cultural requirements and climatic conditions. The design characteristics, organisation, construction technology, standards and adaptability of the traditional house have been lost, as so many dwellings have been demolished. Unfortunately there has been an unwillingness to learn from the design expereince of the past.

2.7 Summary

It has been shown in this chapter how the Libyan traditional dwelling developed during the centuries in which the country was occupied by the Phoenicians, the Greeks, the Garamantes, the Romans, and the Moslems. In spite of the different occupations, the dominant design was the traditional dwelling, with only a few changes in the structure in order to make it more suitable. We have also seen how Italians established a new European dwelling style that was completely different from the traditional dwelling. Finally, the typology of dwellings after the country became independent has changed. The houses built during this period have been of a variety similar to the traditional dwelling, particularly in terms of design and construction system. These types of new housing were adapted from the European style. Thus they had a great impact on the Libyan socio-cultural and built environment as well as on traditional architecture.

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CHAPTER THREE

CHAPTER THREE

SOCIO-CULTURAL FACTORS AND THE BUILT ENVIRONMENT

Table of Contents

3.1 Introduction

Design offers different approaches to providing for the socio-cultural response to the environment. Design ought not to be a free, capricious, 'artistic' or 'creative' activity based on whims, guesses or the preferences of the designers. It is rather a responsible attempt to achieve settings appropriate for specific groups of people (Rapoport, 1983). Such designing requires knowledge, based on research, of how people and environment interact, and of the social, cultural and lifestyle characteristics of the people concerned. A study should be made of the kinds of setting which should be created, the effect of environment on people and the need to provide an environment which will enhance the lives of those living in it. An attempt will be made in this chapter to illustrate the theoretical background of the socio-cultural values investigated in this study.

3.2 Impact of socio-cultural factors on the built environment

Every society has a culture. No matter how simple this culture may be, people tend to feel strongly that their own cultural aspects are the correct ones. Each of us is born into a complex culture that strongly influences how we live and behave for the remainder of our lives (Ember, 1981). There is a tendency to regard those who do not share these patterns as immoral or inferior. This happens in a Muslim society like Libya.

Several writers establish exactly what we mean by the word "culture". In 1987 Lang (1987:80) said, that "our beliefs and attitudes toward other people, the terrestrial environment, our roles in society, and the way we carry out daily activities are all part of our culture". Rapoport(1977) has mentioned that the cultural environment reflects the people's value system, environmental conditions, attitudes and preferences. He believes

that the physical form of the built environment results from people's behaviour patterns in society. This view means that a traditional way of life could dictate the design of housing, space organisation, orientation of buildings and shape, in such a way that the physical structures would become symbolic of society's rules, values, beliefs and norms.

Socio-cultural values such as religion, privacy, and so on are very strong forces and people built their houses to reflect these values. As Rapoport(1977) has said, there is a close fit between the organisation of space, time, meaning, communication and culture. Moreover, "a group of people have a set of values and beliefs...which are learned and transmitted: These create a system of rules and habits, which reflect ideals and create a lifestyle" (Rapoport, 1977:14). Cultural norms are transmitted from one generation to another through the process of socialising. Even when people migrate from one part of the world to another, they take many aspects of their own culture with them (Lang, 1987).

In order to build a picture of the theoretical background of important socio-cultural values, this study will highlight these values separately. The researcher has more than 10 years experience of the selected case study area. The problems of the area and the living conditions as related to social needs structures and traditional values are well known to the researcher. On the basis of the related experiences of the researcher and exploratory discussion with community key figures and housing users, five social aspects have been chosen for study: choice opportunity, privacy, security, religion and prestige. It should be pointed out here that the definitions below are those given by the investigator through the literature review. The actual definitions of these concepts as perceived by the people in the study area, will be presented in the following chapters.

3.2.1 The choice of the dwelling

People are deeply concerned about their dwelling types. They spend much of their time within the confines of the house which also represents the socio-economic status of the individual in the eyes of the society. Moreover, they are also concerned about the neighbourhood and settlement in which they live, and where they prefer to live. The neighbourhood can be varied in its social and physical characteristics, such as density of development, kinds of people who live there, housing conditions, available community facilities, cleanliness, and maintenance levels. In order to feel a part of a neighbourhood a resident needs to know his neighbours and interact with them (Unterman and Small, 1977). There is a good deal of logistical evidence to support this point as indicated in the Libyan popular proverb: ***"Ask about your neighbour before you build your house"***. The particular residential area that is chosen by an incoming family has important consequences for family relationships. Thus, members of a family place prime importance on the types of neighbourhood and the settlement in which they live. Rapoport (1980: 120) wrote:

> "In reality, a major effect of environment on behaviour is through habitat selection: given an opportunity, people select the environments that suit them, and that are congruent with psychological and socio-cultural aspects of their behaviour"

Choice is the major influence of environment on behaviour. People leave an inappropriate environment and seek out an appropriate one which satisfies their life needs. Hence inability to choose is a major environmental problem. Many housing projects in Libya are planned and designed before the site is decided and the same design may be used in the whole country. A different design is needed for people living in different environments. People who have moved from a traditional dwelling to a new dwelling area have serious problems which may have a negative effect on their housing conditions and socio-cultural life. These policy gives no opportunity for people to pick an

environment congruent with their preferences. People who are compelled to pick an unsuitable environmental setting will try to change it (if they can) to one more to their preference. According to Rapoport(1980) most environments can be equally desirable if they have been chosen on the basis of perceived environmental quality, the meaning of various aspects, acceptable standards, suitability with ways of life, socio-cultural values and so on. Conversely, if no opportunity is given to choose, these environments may be equally undesirable. At the same time, built environments, even if chosen, do need to suit the ways of life, desires and images of the people concerned.

Research efforts linking the socio-cultural characteristics, behaviour and attitudes of people with the home, neighbourhood and other aspects of the physical environment, started with Rossi's study(1980) on why families move. In his study of intra-residential migration in Philadelphia in the United States of Amearica, he emphasised the link between mobility, individual households and their housing and neighbourhood characteristics. Rossi's study indicates that the most important determinant of residential (space, location, cost) or neighbourhood dissatisfaction was choice of a particular dwelling unit. He also indicated that dwelling size, design and neighbourhood location were the most important criteria for dwelling selection. Moreover, when analysing the reason, he found, "54 per cent of the respondents did not refer to the characteristics of the old home, 74 per cent did not refer to the new home, and so on through each of the four sets of categories" (Rossi, 1980:175). The fact that people move to a new home does not mean that they are dissatisfied with the old home.

Speare ***et al*** (1974) examined the concepts of stress and satisfaction as determining factors in residential moves. He formulated a module which emphasises that a household's change of residence is precipitated by the dissatisfaction or stress of changing needs internal to the household, or change in immediate environmental factors.

Michelson (1970, 1977) shows the influence of both social (friendliness of neighbours, ethnic, racial or economic composition) and physical (housing style and condition, landscaping, available facilities) features of a neighbourhood on people's satisfaction levels.

It is important in terms of design to give people the opportunity to choose the kind of house and location in which they would like to live. Thus, it is essential to know and understand people's preferences for housing, neighbourhoods and settlements in order to build valid foundations and formulate appropriate policies for planning and zoning of the residential environment and provide housing that meets people's desires and needs. With such knowledge, it is also possible to predict the future demand for housing types in the future as it is believed that it is important for family cohesion that a child should feel a member of the household even when absent (Madge, 1968).

3.2.2 Security/Safety

Man prefers a safe, orderly, organised environment to a chaotic one (Maslow, 1970). The lack of safety in some architectural environments has motivated some researchers to study the relationship between architecture and human needs for security. Newman's (1972) research on defensible space promotes the idea that the design of interior and exterior space can play an important role in ensuring security and safety by enhancing the users' ability to control their surroundings. Lynch (1960) and Horney (1937) have also contributed to architectural theories in terms of security/safety needs. Security in the shelter could be defined as the idea of "home" which implies at the same time personalization and safety, and includes the concept of defensible space and territory. However, in order for these concepts to be pertinent to the present discussion, they must be further analysed.

3.2.3.1 Home security/safety

Home security is a significant element in the lives of people. Every nation regards the home as a sacred place; a person cannot enter another's house without permission. People are deeply concerned with their dwelling because it reflects their security, personality, socio-cultural values and dignity. Walls and fences are efficient territorial markers that make their houses more secure and personal. "The more barriers you place in front of a home (such as fences and locked doors and windows), the less attractive your home will be" (Burton, 1995:7). Moreover, a shelter or house acts as a filter between the external environment and the comfort needs of the user within. The function of a home is to provide a place where human activities can take place without distraction from others, both human and animals. As Porteous (1977:62) states: "It is a refuge which we defend against the world". The same idea is suggested in "every man's home is his castle" and "every dog is a lion at home". Moreover he states that "home is where the heart is" and "be it ever so humble, there's no place like home"; it is the symbolic hearth and source of our being.

Security is key to a home, at the level of house or room. Security measures are understandable when one considers the vital importance of the home base for vulnerable activities such as sleeping, grooming and reproductive behaviour (Porteous, 1977).

Rapoport (1969) suggested that home-based security involves a recognition of the sanctity of the threshold. Figure 3.1 illustrates the relationship between cultural norms, physical structure, and permeability of the home base, comparing the Moslem house, surrounded by high walls with few, small openings, with the British house with low walls or fences, and finally, the North American house that consists of a suburban plot, lacking fences and with large picture windows, as three different attitudes toward the transition from the private to the public.

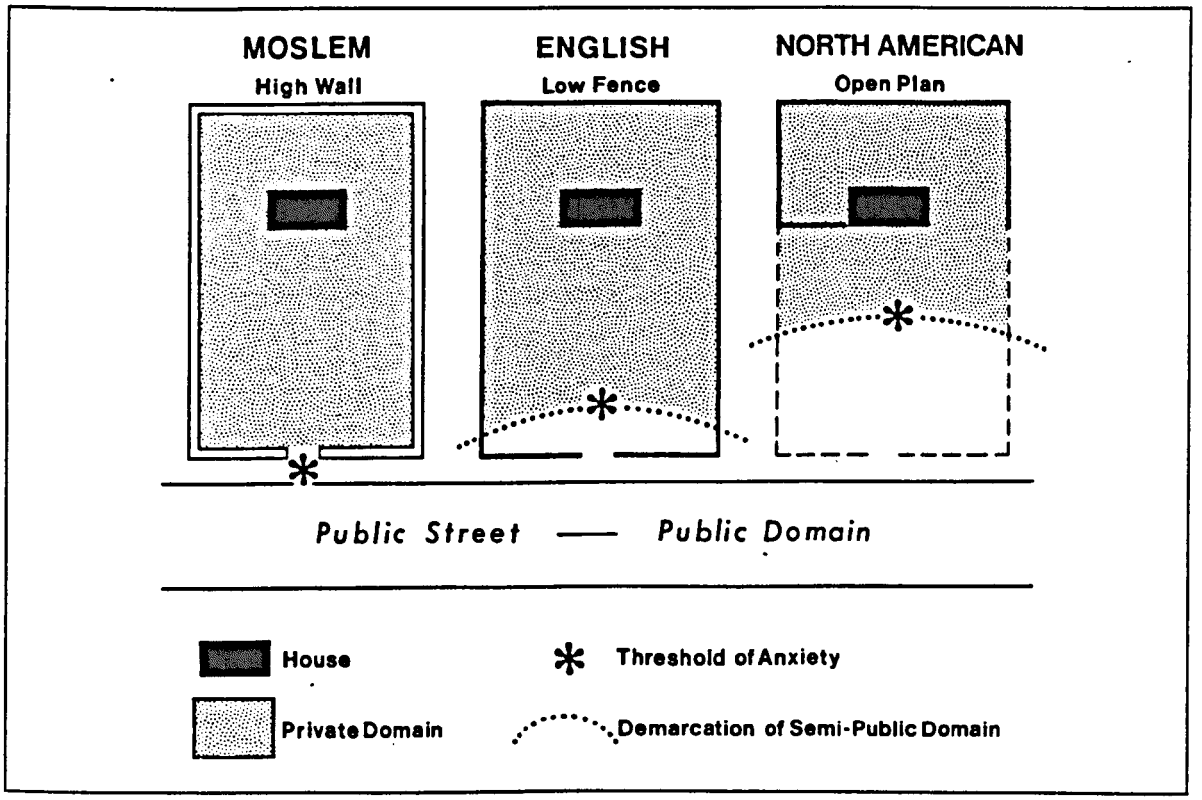


Figure 3.1: Cultural variability in the sanctity of the threshold

Source: After Porteous (1977:64)

3.2.3.2 Personalization

The personalization of the home may also provide a feeling of security and can be achieved through different means, amongst them: interior and external home decoration, plants, colours, even garden sculpture and the use of prickly plants to provide extra natural protection around the property (Burton, 1995).

Personalization of the home could also be regarded as an attempt at prevention of intrusion which, by so doing, provides a feeling of security. This could also be achieved through individualisation of the house in ways such as naming of the home. Personalization could be sought in shape, or in colour schemes, garden arrangements and tree planting (Porteous, 1977). The desire for a sense of the personal will sometimes

motivate people to see their own behaviour as a reflection of their personality (Kleinke, 1978).

It is very important that people have some means by which they can make their home unique. They need to identify their own property and to give it a character different from others, particularly in state provided housing, where the dwellings are usually of a standard shape, size and colour. "Most people need, if not to design their dwellings, at least to give them some touch of uniqueness that says: this is mine; it is a reflection of me/my family; and I/We are worthy and unique beings" (Marcus and Sarkissian, 1988). This touch of individuality can have great psychological influence on the owner, particularly in terms of feeling secure and adding happiness and interest to an area.

This study will be concerned mainly with security within the neighbourhood and houses built by the government, where there are no security devices or safety from automobile accidents and burglary. This is particularly true in the contemporary settlements where there are dangerous intersections and much speeding traffic. Traffic safety within a residential area is vital, and there is serious concern for the safety children, while they play in the vicinity of their homes, or are on their way to school. For example, "each year in Britain, one in five children under the age of 15 is taken to hospital after an accident in or around the home" (Burton, 1995:78). Road traffic accidents are a major threat to children's safety. Islamic law lays a strong emphasis on good behaviour and with penalties for those who break the law. Hence an architect designing housing needs to consider traffic safety and the prevention of accidents.

3.2.3 Privacy

Privacy is defined by several writers. Altman (1975: 11) wrote:

> "Privacy is an input and output process; people and groups attempt to regulate contacts coming from others and outputs they make to others. It is important to understand how people and groups regulate privacy with regard to what comes in from others and what goes out from the person or the group to others."

Rapoport (1977:289) said privacy is: "the control of unwanted interaction". Inttelson ***et al*** (1970:181), privacy means: "obtaining freedom of choice or options to achieve goals in order to control what (and to whom) interaction is communicated about oneself". Altman (1975:8) also defines privacy as regulation of interaction while others seem to regard it as a "selective control of access to self or one's group". Similarly, Westin (1970:32) and Margulis (1977:5-21) describe privacy as a mechanism acting as a regulator of interaction which aims to enhance autonomy and freedom whilst minimising vulnerability. Insel (1978:143-145) also tried to discover whether the esteem in which privacy is held is culturally relative, and found that there are cultural, and personal differences between societies and in persons at different stages of their life cycle.

It is clear from the above definitions that privacy is the control of access, communication interaction and cultural sensitivity. In other words, privacy is the control of information filtration. It also involves both the socio-cultural and physical environments. At present the concept of privacy seems to include both ideas that are mentioned above, which are the nearest definitions to the concept of privacy used in this study.

In order to understand how privacy affects, and is affected by, the physical and socio-cultural environment, it is important to understand its states and functions. The following section will briefly investigate both privacy states and functions.

3.2.3.1 The states and functions of privacy

In this section an attempt is made to identify the states and functions of privacy, if there are any. Westin (1970:32) categorised privacy into four states and four functions. The functions are on an increasing scale of privacy with "Solitude" on one extreme, where a person is separated from the group and freed from the observation of other persons. "Intimacy" is the state where only two persons such as husband and wife are concerned, "Anonymity" is the state of privacy where a person has lost his way in a public place such as a station or a cinema. The last state of privacy, "Reserve" is one in which there is the creation of a psychological barrier against unwanted interaction.

Westin (1970:33-37) suggested four functions for privacy:
(I) Personal Autonomy. This deals mainly with self and the important issues of self-dignity and worth, self-identity and independence. (II) Emotional Release, which enables a person to be "off stage" from social roles such as relaxing in speech from the pressure of social roles and so on. (III) Self Evaluation which means that once far from public observation one can efficiently assess past experiences and plan for future action. (IV) Limited and Protected communications, for instance business meetings requiring secrecy and security.

Several other writers have identified the functions of privacy. Rapoport (1977: 203-207) stated that "privacy seems to be an element in the use of space and can be understood in terms of the sensory awareness of people". The role of the architect is important in using space to protect people's privacy, and to enable them to communicate and behave in accordance with their socio-cltural values. It also affects perceived density, in relation to the person's experience and intimacy, which is an important element in planning and design. In urban environments, because of the high density of population, the presence of strangers leads to feelings of threat and stress.

Environment can be seen as a form of communication, as well as a medium for facilitating and controlling communication and interaction. In effect, various ways of patterning and structuring the physical and social environments reduce overload and enable people to relax and get ready for more stressful encounters. Different mechanisms for privacy (i.e. controllers) also help to control excessive, unwanted interaction and social communication (Margulis, 1977:5-21).

The control of interaction and information flows (i.e. privacy) to reduce stress occurs through many major mechanisms. Crowding is handled, by both people and animals, by controlling interaction. Information levels are controlled by particular groups to make them compatible with their information needs and abilities (Rapoport, 1977: 340-341). These levels and the means of control used to reach them need to be understood in order to understand and organise, structure and design of housing and settlement plans.

Cultural devices used to control the appropriate amount of information and interaction, such as rules, are necessary to the use of space. They affect territorial and domain divisions, proximity and sex roles. Following Rapoport, one can argue that cultural survival may often depend on setting up group territories so that group identity is authorised and reinforced (Rapoport, 1977:288, 333-334).

From the foregoing discussion, the need for privacy can be seen as a need for protection against interaction. However, the need to understand how communication and interaction is controlled is essential towards the achievement of such a goal. The following section will explore the nature of privacy defences.

3.2.3.2 Privacy controllers

As was maintained previously, if privacy is the ability to control unwanted interaction at will, then this also involves environmental information flows. In other words, controlling mechanisms used for privacy can be understood in terms of controlling unwanted social communication and environmental information. This may be due either to the excessive amount, or the need to avoid, particular types of interaction.

Johnson (1974) used the construct; "personal control". He suggested four aspects of personal control in privacy regulation: (1) The "outcome choice" control stating the level of privacy aimed at; (2) "Behaviour selection" control which refers to the ability to choose behaviours to achieve a designed outcome; (3) "Outcome realisation" control which points to the degree of effectiveness in dealing with the achievement of a designed level of privacy; (4)"Outcome realization" control which points to the degree of effectiveness in dealing with the achievement of the desired level of privacy. Rapoport (1980:284) wrote:

> "An individual lives in an extremely complex set of spatial units personal space, individual territory, territories of various groups, complex sets of core areas, jurisdiction and overlapping home ranges. These are reflected in the built environment and its use."

Another possible form of controlling unwanted information and unwanted social interaction, (i.e. control of territory) is through physical barriers (Rapoport, 1980). He goes onto identify six main mechanisms used to control unwanted interaction: (1) Disciplines (manners, avoidance, and so on). (2) Behavioural cues (3) Psychological means (internal withdrawal). (4) Structuring activities in time (so that particular individuals and groups do not meet). (5) Spatial separation. (6) Physical devices (doors, courtyards, curtains and so on). Hillier, ***et al*** (1984) noticed that the spatial organisation of human settlement in itself is one of the mechanisms which control the amount of

information and interaction. For people as well as for animals, social and spatial organisation and structure are closely related and one can be read from the other.

The above devices can be used to control the flow of information and unwanted interaction in the built environment. These controllers involve socio-cultural devices, psychological means, spatial separation and physical barriers, space organisation, social rules, walls, doors, curtains, private gardens, courts and so on. Present architects consider these devices to achieve the desired level of privacy. Lessons can be learnt from studing existing traditional architecture as in the past there were many devices used to control social contact and interaction. Muslim, African, Chinese or Japanese, cities provide examples of ways of coping with such stress, cultural, social and physical, caused by the complete loss of the social environment needs (figure 3.2).

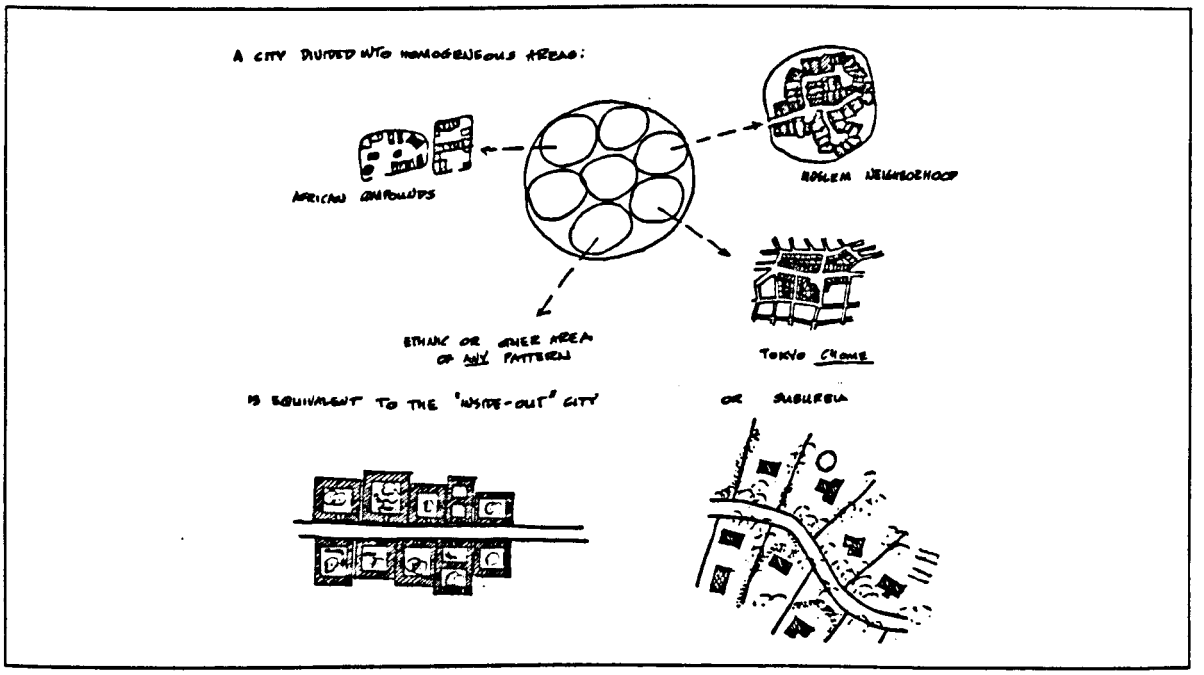


Figure 3.2: The use of physical barriers i.e. space organisation and mass, of walls, courtyards and clear strong transition, which is one way of expressing domains and to filter information and control unwanted social interaction.

Source: Rapoport (1977: 337)

3.2.4 Religious needs

Religion is an important factor in most social lifes particularly in developing countries. It is different from other values of social life, in that it is concerned with systems of belief as well as relationships, the existence of which are not open to observation (Mair, 1980). Geertz (1960) has described religion as: a system of symbols which act to establish powerful, pervasive and long lasting moods and motivations and to the formulating of concepts which lead to an aura of factuality, that causes moods and motivations to seem uniquely realistic.

Religion means not only the relationship between man and God, but also man's relationship with other humankind. Horton (1966) states that "religion is an extension of the field of people's social relationships beyond the confines of human society" (quoted by Mair, 1980:230). Thus, man must observe the social principles and rules of the religion in his society because religion is a very significant value in a scheme of socio-cultural values that has a direct influence on people's feelings and their behaviour. Therefore, it seems that a definition of the concept of religion, and its influence on people's behaviour is of vital importance, but what is the impact of religion on the built environment? Rapoport (1969:41) has noticed that: "in some cultures, a man exiled from his house was separated from his religion", which means that religion affects the form, plans, spatial arrangement, and orientation of the house. In this section the Islamic religion is used as an example to represent the effect of religion on the built environment.

3.2.4.1 Islam and Muslims

The word "Islam" in Arabic means peace, submission and obedience to Allah. The Islamic religion means complete acceptance of the teaching and guidance of God as

revealed to His prophet Mohammed (Peace be upon him). A Muslim is one who believes in God and strives for total recognition of His life according to his revealed guidance and the sayings of the prophet. Central to this is the acceptance and practice of the five pillars of the faith, namely; (1) The declaration of faith, (2) Prayers: offered five times a day, (3) Fasting in the month of Ramadhan, (4) Zakat: To pay 2.5% of one's annual income as a religious duty, the money to be used for charitable purposes amongst the poorer sections of the society, and (5) Pilgrimage (hajj) to Macca: it is to be performed once in a lifetime if one can afford it financially and physically.

Islam teaches responsibilities based on kindness and consideration of others. Since a broad injunction to be considerate is not likely to be achieved due to specific situations (i.e. the need for segregation between the opposite sex in terms of space), Islam lays emphasis on specific acts of kindness and defines the rights of various relationships. Islam has laid down some universal fundamental rights for humanity:
(1) The security of life and property; (2) The protection of honour; (3) Sanctity and security of private life; (4) The security of personal freedom; (5) The right to protest against tyranny; in Islam, all power and authority belong to God; (6) Freedom of association.; (8) Freedom of conscience; (9) Protection of religious sentiments; (10) Protection from arbitrary imprisonment; (11) The right to the basic necessities of life; (12) Equality before the law, (13) Rulers not above the law; (14) The right to participate in the affairs of state (Zeidan, 1975).

3.2.4.2 Islam and the built environment

The moral system of Islam directly affected the built environment within which Muslims live. With the spread of Islam, the world has witnessed a special system of settlements that reflect the Muslim way of life. The basic principles and guidelines of the building process and its framework were derived from the spirit of Islam (figure 3.3). The

building development and urban design principles centred primarily around housing and access. Newly designed elements were added to suit the values and social needs of an Islamic society (Hakim, 1986 15-55). Examining traditional Muslim urban patterns in terms of socio-cultural and activity systems shows that the need to control behaviour and social contact is the main determinant to the design of spaces (Bernard, 1974 252-258). This can be seen at all levels of spatial organisation, i.e. from the internal spatial distribution of the house to the way that buildings are organised and the neighbourhood and city are designed. We can also see in a traditional Muslim settlement that these are satisfied by arranging space in a hierarchy different from other cities in Western countries such as the United States of America (figure 3.4) where the emphasis tends to be on the individual. The organisation of the hierarchy is based on controlling access and mobility, thus controlling social interactions. The number of levels in between are different from one place to another, according to the size of the group and the degree of privacy required. The most common model followed by these cities is to use the main mosque, the citadel (fort) and the 'souk' (market) as the focal points of the settlement

Due to the Islamic concept of the equality of human need, residential quarters are not divided according to status, with rich and poor living alongside one another and sharing facilities (Adam, 1990). Although the quarter has its own social system, there is always a balance maintained between such isolation and participation in the communal economic affairs of the settlement as a whole. External walls must be built to a height that ensures that the domestic interior cannot be overlooked. The windows must not overlook neighbouring courtyard or terraces.

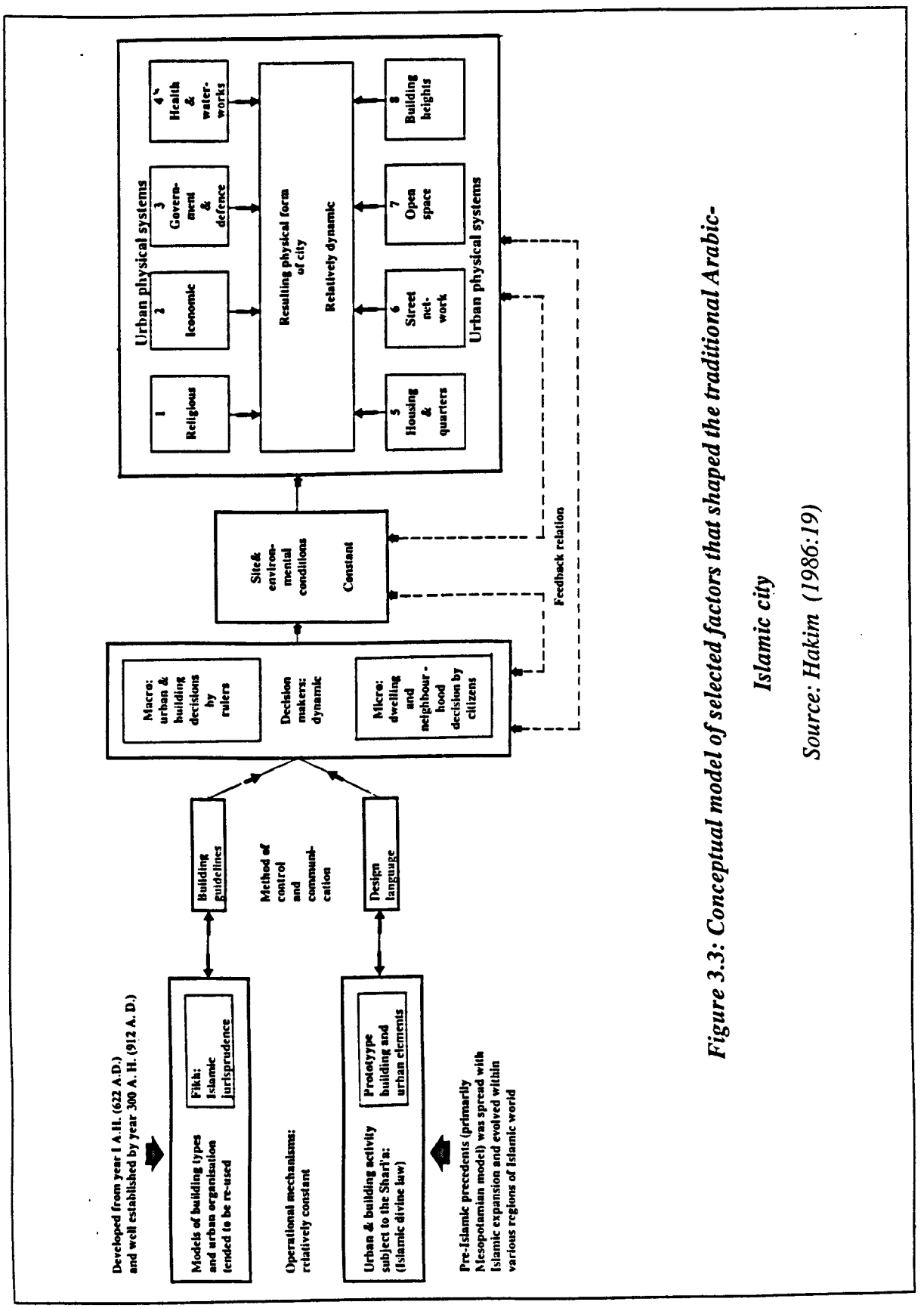
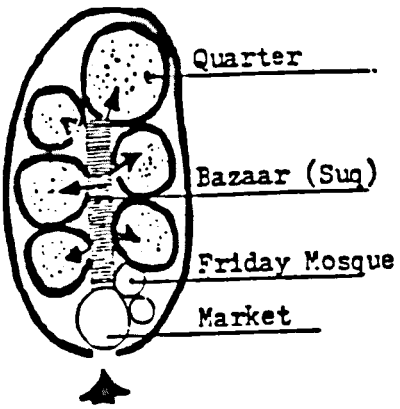
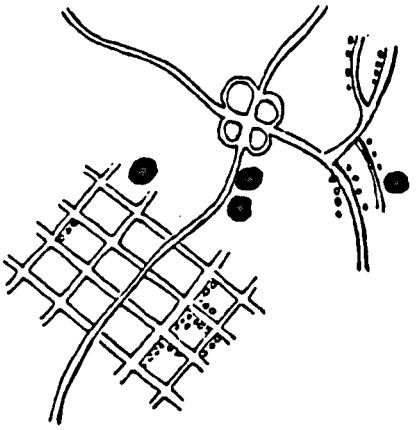


Figure 3.3: Conceptual model of selected factors that shaped the traditional Arabic-Islamic city

Source: Hakim (1986:19)



Traditional Moslem City: Limit movement and control behaviour by controlling mofility.



U.S City: Maximize movement and accessibility.

Figure 3.4: The differences between a US and Muslim City in controlling accessibility

Source: Rapoport (1977), Brow (1973), Delaval (1974).

At the dwelling level the need to control social interaction and behaviour had a very strong impact on the dwelling design and use of space in traditional Islamic settlements (Abu-Lughod, 1980). The need for every family to have their own dwelling space has led to a clear segregation between public and private space. The separation between the inside and outside of the dwelling and between the two sexes is physically manifested in the various forms of barriers through which women can see but are not seen, for instance in the use of "mushrabiyya". The location of the main entrance is also a very important element in the dwelling since it controls contact between the sensitive areas (private, semi private, public) and the outside. It is usually managed in such a way as to avoid the visual exposure of the interior domestic space from outside.

The teachings of Islam lay great emphasis on conquering the temptations of sex and avoiding the resulting moral decay. Therefore enormous importance is given to the sanctity of the family, privacy and respect as seen in the Quran (God book):

> "Oh ye who believe! Enter not a house other than your own, until ye have asked permission and saluted those in them; that is best for you in order that ye may heed (what is seemly). If you find no one in the house, enter not until permission is given to you: if you are asked to go back, go back; that makes for greater purity for yourselves and God knows well all that ye do."
>
> (Sura An-Nur (24) pp: 27-28).

Another visible and prevalent effect of the teaching of Islam is found in the decorative elements of building. Grube (1978) wrote that the Islamic dwelling is an 'introverted' form, with emphasis on the decoration of the interior components. Geometric patterns, inscriptions and colour are used but never the representation of figures which was understood to be forbidden in the Quran.

Hakim (1986) stated some guidance for compatibility between the built environment and Islamic principles, based on the teaching of Islam. People and designers must take this guidance into consideration:

(1) Everyone is entitled to claim his rights but must not pursue a claim to the detriment of other people; (2) Everyone should respect the property of others; (3) The Prophet decreed the right of pre-emption of a neighbour to purchase adjacent land or buildings in cases when a stranger may wish to own property, such as a garden or wall, which is indivisible; (4) Privacy must be respected. The Quran encourages one to behave in such a way as to ensure that privacy is never invaded. Thus, when building, access to private quarters should be along "blind" corridors; (5) The right of your neighbour to have light and air must be recognised. This means that all houses should be the same height and no-one should add on extra storeys which would block the light or air; (6) Street dimensions were also prescribed in the sayings of the Prophet Mohammed (peace be upon him) "if you disagree about the width of street, make it seven cubits". This measurement is based on the space required for two laden camels or donkeys to pass; (7) Sharing amenities is

another important aspect of the Prophet's teaching: "if you deny access to water, you will also deny the benefits of pasture". Any surplus water had to be given to others to use and everyone had the right to equal access according to their needs.

In the present day, when building styles, techniques and materials throughout the Islamic world are increasingly drawn from alien cultures, particularly from the West, it is necessary to comprehend what traditional Islamic society itself sees as important in its architecture, domestic or otherwise. This can help to decide priorities in desgining the built form and their symbolic and social implications.

3.2.5 Prestige needs

The need for prestige involves the desire for self-respect, a sense of personal worthiness, and the esteem of others (Maslow, 1970). Weber (1951:133-135) defines prestige as the possession of talents even when not used. Barkow (1975:553-572) argued that the main way in which we strive to maintain our self-esteem is by seeking prestige. Prestige may also be sought "in property and birth, occupation and education, income and power- in fact, almost anything that may individually distinguish one person from another" (Mills, 1951:239). He went on to argue that in the status system of a society, claims for prestige are organized in a system of rules and expectations which regulate them in terms of "from whom", "in what ways", and "on what basis" prestige should be claimed.

Marital status, class, age, number of children and personal attitudes are factors affecting the level of prestige and interaction between neighbours. For example, single, high class or young residents, especially those with no children are less likely to interact with their neighbours than low class, elderly or married residents, in particular those with children. Williamson (1981) argued that married residents, and especially those with children, had

a greater opportunity to know their neighbours than did single people. He also suggested that being older or more established, this class had more children, and this promoted greater interaction. On the other hand, single residents were orientated more towards social relationships outside the complex. People feel that they belong to a particular territorial or social group within which there is a sense of identity and a high level of social interaction (Homans, 1965). Barkow (1975) argued that the poor do not compare themselves with the rich, but only with each other, thereby avoiding the crushing blow to self-esteem which might otherwise result. That may allow residents to know neighbours with similar characteristics and interests whom they can get on with and this, in turn, will increase their level of satisfaction in terms of prestige.

When others are more successful in achieving prestige, we feel envy. The recent analysis of envy increases our understanding of the ways in which our cultures protect our self-esteem (Barkow, 1975). People are deeply concerned with prestige whether they are poor or rich in terms of housing design, as they think it reflects their social position and respect coming from others. There are several indications of prestige in the house which may be shown in such features as type of building materials, cleanliness, home comfort in terms of climate, amount of space, aesthetics, plants and the house location, as well as neighbours and neighbourhood types. These housing elements make the users very contented and able to live happily in their community. Prestige seems to generate the sense of beauty (e.g. particularly where the householders use masharabiya, vegetation, plants, arches and decoration). They consider that which is prestigious as also beautiful. All these elements are rated relatively highly and play a part in increasing security, contributing to the efficient functioning of the home, and can be recreational.

In short, a home, with its exterior and interior components, has its own symbolism where the exterior of the house is a form of display. Among the physical aspects that

communicate are its size, form, materials, colour and texture as well as the craft of various parts of the house which contribute to the prestige value. In contrast, many contemporary mass housing projects lack such a sense of prestige (Rapoport, 1968:300). The design of public houses in Libya is not flexible enough for them to fulfil their residents' individual and group needs for prestige. For that reason prestige is also an important aspect affecting the design of housing, and helps us to understand the process of change in the house in the case study. It plays a significant role in shaping the built environment in general and shelter in particular.

3.3 Approaches to Designing for the Socio-cultural Response to the Environment

3.3.1 The quality of the environment

The basic concern of environmental design and research is in the relationship between humans and their built environment. More specifically, an attempt will be made in the study to show the link between the socio-cultural characteristics and behaviour, and aspects of the physical environment. This study is oriented towards investigations of dwellers as they go about their normal life and activities. It aims to investigate the housing design process in order to improve the quality of the built environment. According to Rapoport (1969:47) the form of dwelling and use of space moulds should be related to people's socio-cultural values, conditions, and their relationships with others.

> "The environment sought reflects many socio-cultural forces, including religious beliefs, family and clan structure, social organisation, way of gaining a livelihood and social relations between individuals".

The influence of any environment on people will depend on its importance to them. Thus, for some people, the dwelling is more important than the neighbourhood in choosing

where to live. The dwelling is seen as part of the person's socio-cultural values as a "Qabr-Al-Haiat" life's grave. In other cases, social factors, such as group homogeneity, (i.e. people who live in groups of adjacent dwellings) may be more important. However, in all cases, one needs to consider the suitability between psychological and socio-cultural aspects of behaviour and the corresponding systems of settings; where these form part of a group's way of life, it goes beyond environmental preference. That means that choice and habitat preferences are most important, because they allow the matching of environments to needs and wants and reduce adverse effects on behaviour.

The understanding of environmental quality and its relationship to the quality of life has not yet been satisfactorily expressed or defined and the need for it has yet to be established. It is essential in this field to devise criteria to determine the quality of life and environment. The importance of this has been emphasised in recent literature. The impact of perception on the definition criteria regarding the quality of the environment has also been emphasised in the recent literature, in which environmental quality is considered a variable concept (Rapoport, 1973).

3.3.2 Perception and environmental quality

There has been an increasing awareness of the impact of perception in transactional processes between people and their surroundings. It is held that intervening variables in the relationship between people and their environment are filtered through people's perception and conceptions of the environment (Moore, 1985). Any conceptualisation of man-environment relations, it has been argued, should consider perception as a preceding factor to any interpretation of action on the environment (Rapoport, 1970). Perception is, to an extent, dependent upon values, norms, attitudes and so on. People may perceive and respond to a given environment in quite different ways (Rapoport, 1983). Needs in design

are also perceived needs and the factors by which the quality of the environment is to be judged are perceived variables (Rapoport, 1970).

Perceptual relativity has been related to complexity and variability in cultures and sub-cultures (Segall, 1970). There are also group and individual differences in perception, within the same society, relating inter-alia to socio-economic status, occupation, family life cycle, age, etc. (Lipman, 1974 and Bateman, 1974).
Of particular interest are the differences in perception between designers and the public concerning environmental quality in shelter.

3.3.3 The gap between designers and users

The gap between designers and users is the main reason for the failure of recent housing to fulfil the user's needs, and this is due to the nature of the relationship between the designer/professional and users/client. Hence, the designer-user relationship is also important in contributing to an appropriate relationship between people and their environment. "To understand successful 'fits' between users and buildings, one has to understand the relationship between client and professionals" (Lang, 1987:8).
There is imperfect knowledge of the inhabitants' preference for housing in general, and a paucity of information on relevant factors involved in residential satisfaction as well as housing design. This creates serious problems for architects and occupants in terms of housing design processes. Lang wrote "there has been a tremendous gap between the architects' intentions and his achievements" (Lang, 1974:3). Lang also discusses specific reasons, which he suggests, are the core of this gap. He states:

1) The nature of the client is changing to heterogeneity: architects no longer design for people like themselves similar requirements, values and attitudes.

2) Housing needs have shifted from those related to physiology and security towards higher user needs of self-esteem, identity and so on. At the same time, the profession has been reluctant in the re-consideration of traditional principles and process of design.

The relation between designers and the public. There are suggestions that the two act like subcultures with different perceptions and values (Lerup, 1973:340).

> "The role of the designer as expert on the built environment is a recent phenomenon. Long before the act of building was a community task performed by the users themselves. We can still see examples of this in non-industrialised societies. The relationship between the maker and the built environment is intimate and the time lag between building and use is short and clear"

Lerup (1973) stated two factors which identify the relation between designers and users in the past and present. A successful relatioship is based on a thorough acknowledgement of both the interior and the exterior environment. The result is a wholeness admired by both architects and laymen. However, with new development, the experts appear to interpret the needs and desires of the user. Figure 3.5b shows that with the separation of builder and user the vital feedback link is broken.

According to Rapoport (1970), many of the alleged mismatches between design and occupants' needs may, in part, be attributed to a lack of conformity between a designer's perception of the environment (which is reflected in his design) and that of the user group. Referring to the design profession as a subculture, Rapoport also argued that designers have very special value systems and ideals, not necessarily shared by other groups. Several empirical studies, conducted by Canter (1970), are directed at this issue, and have suggested that architects and non-architects think about buildings in different ways. For example, in one study differences in priorities of design attributes of building between architectural and non-architectural students were documented. In another study,

differences in the way in which architects and ordinary people evaluated houses were recorded, although architects from different cultures had similar views (Canter, 1970).

That design professionals generally perceive the environment in different ways from the general public has been well established (Edwards, 1974, Kameron, 1973). Above all, the fact that there are also different "publics" has made the problem of understanding them even more complex.

Rapoport (1973: 149) suggested the following questions which need to be asked before designing:

> "1) How important is lineage in preserving desirable/understandable characteristics of the group (2) What is the symbolic meaning of space? (3) How essential is the spatial arrangement and symbolism for this lineage arrangement? (4) What is the relation of the lager arrangement of marketing and shops, compact plan vs. scattered, social and economic function of peddlers or shopping, of ethic and other clustering and homogeneity to the lineage pattern? (5) How should any new development be organised to influence the desired end- e.g. the preservation of the family lineage structure? (6) What is the feedback through testing of alternatives, including the relative success of alternatives in habitat selection, attractiveness and ability to change and be modified?"

3.3.4 Design, use of space and human behaviour

In terms of differences in perception of housing needs, the design and use of space are of particular consideration in the relation between designers and users. Housing can be considered as a setting for a particular system of activities, organised in space and time. One needs to understand the suitability and unsuitability between people's lifestyle and environments by asking who does what, where, when, including or excluding whom, and in what context. Starting with dwellings as the anchoring point, one can then analyse other related settings and see how activity systems are distributed among them in different

situations. Activities which may occur in a setting in one culture may, in others cultures, take place in a variety of settings. Alnowaiser (1985) views activities as the key element in shaping the built environment. Having listed activities such as socialising, playing, and shopping, he located the space where they take place. He found that one activity may take place in several spaces and a space may be used for many activities, he stated:

> "place is the unique identity of a space derived from a perceptual unity and one's sense of attachment. Recent ethnological studies have demonstrated that animals have a sense of place and try to protect their territory...A place provides for biological needs such as food, water and rest. It has a broad, yet subtle multiplicity of interrelated meanings. As place can be identified with humans, animals, or objects; it can be 'my place', 'their place', the horse's place "the barn", the car's place (garage, parking) and so on."
>
> Alnowaiser (1985:5)

Alnowaiser's study shows that a change in activities automatically followed a change in space. To show this he compared two different settlements (which have different patterns of activities): traditional (the old Al Kabra) and modern (the new Al Kabra) inside Arabia. The study showed that some spaces in the traditional settlement are not to be found in the contemporary settlement. For example women's activities take place in the traditional dwelling, but no provision is made for them in the modern dwelling. Some spatial characteristics may exist in both traditional and modern settlements, but in different degrees. For instance, instrumental qualities are more dominant in modern urban forms than in traditional ones.

Activity is believed to consist of latent and manifest aspects, and this makes it very difficult to guess exactly what a group of people are doing. For instance Rapoport (1982: 39) noted that:

> "we observe groups of people singing and sowing grain in two different cultures. In order to know the importance of these two activities to the people concerned, we need to know that in one culture the sowing is important and the singing is recreational; in the other, the singing is sacred and ensures fertility and good crops".

Different groups have quite different dwelling settlement systems (Rapoport, 1980). However, studies which have related actual use of space in buildings with designers' expectations are few. Despite little research in this regard, Canter (1975) wrote that what research there has been shows that the users' spatial needs and space use have not totally matched the original design expectations. Many weaknesses of design, particularly design of space have been attributed to incorrect assumptions about, and a lack of understanding of, human behaviour (Canter, 1974). A better, fuller and more scientifically based knowledge of people and their behaviour, it has been argued, may contribute to the better design of environments (Canter, 1970). Design professionals have been urged to reconsider and understand the implications of design decisions for human behaviour. Consideration of the latter as a basic class of variables in design has been proposed (Studer, 1972). To design responsively for behaviour therefore, it is argued an understanding of design behaviour relations and of the user and his requirements should be reached.

To give an example, two types of cultures can be found in Libya. One is in the coastal area where children play primarily in the street with whatever children they meet. Secondly, one in the desert area where children play only with invited children in their neighbourhood play area, or in their house courtyard. Here the importance of the shelter, its adequacy, its relationship to the street, neighbourhood and so on, is quite different in terms of these particular activities.

3.3.5 Mode of Design and Behaviour Relations

3.3.5.1 Architectural determinism

In his definition of determinism Lang (1987) recognises environmental determinism, physical determinism and architectural determinism. Hierarchy of beliefs about the impact of environment on people, he thinks, is necessary to clarify the relationship between built environment and human behaviour.

> "Environmental determinism is the belief that changes in geographic, social, cultural and built environments shape behaviour. Physical determinism is the belief that changes in the geographic environmental and "built form" will result in changes in behaviour. Architectural determinism is the belief that built form, composed of architectural and/or natural elements, will lead to changes in social behaviour"
>
> (Lang, 1987:101)

This notion of architecture assumes that the design of the physical environment greatly affect man's well being and satisfaction. Many sociologists challenge it and take a sceptical view (Ronsow, 1961).

The notion of architectural determinism has been frequently attacked and addressed as a misconception of people-building relations (Broadbent, 1973). Sociologists, on the whole, do not share this view of the extent to which the built environment affects human behaviour (Langdon, 1965). The popular view holds that the influence of design on behaviour can be important, though not deterministic (Rapoport, 1969). The effect is in the form of facilitating or restricting. It is also believed that stronger impact can be observed more in negative influence where the environment may inhibit behaviour (Lang, 1987).

Rapoport drew attention to a number of studies carried out in different physical settings (dwellings, schools, hospitals, etc.), which indicated the effect of built environment upon

behaviour (Rapoport, 1970). Wohlwill and Carson, suggested that there are important ways in which the behaviour of the individual may be influenced by characteristics of the design and layout of spaces (Wohlwill and Carson, 1972).

Lang (1987) endeavoured to explain behaviour solely in terms of the built environment, and stated that it was responsible for changing social behaviour patterns. Environment as a whole is an extension of behaviour, and behaviour in turn is affected by the total environment including socio-cultural and physical environments. However, the built environment can be only one of the many of environmental elements. Besides, its relative importance varies, depending on the socio-culture and other circumstances.

3.3.5.2 Model of cause-effect

This deterministic definition of the nature of man-environment relations assumes that the link is causal, that is a one way transaction. Porteous (1977) regarded determinism as a concept which asserts environment as a dictator, directing people's actions in one direction rather than another. That means that physical environment influences human behaviour and therefore human behaviour has a definite causal relationship to physical environment. Broady describes environmental determinism as "the simple idea that a good physical environment will necessarily produce good social effects" (Broady, 1968:14). However, he stated:

> "that architectural design has a direct and determinate effect on the way people behave. It implies a one-way process in which the physical environment is the independent, and human behaviour is the dependent variable. It suggests that those human beings for whom architects and planners create their designs are simply moulded by the environment which is provided for them"

Brolin (1976) attacked this simplistic view of architectural determinism by declaring: "It must be understood that architecture should not tend to deal with how people should live rather than how they do live" (Brolin, 1976:121). Furthermore, architects did not feel that they could decisively affect people's lives and behaviour through change in the physical surroundings. Only two areas can be relatively clearly controlled by architects: (1) Whether the building fits in harmoniously with its surroundings or conflicts with them. (2) Whether the building conflicts with or accommodates the way of life of the people who must use it.

Many other writers, such as Lang (1987) provide a more clarified definition of the man-environment relationship. By dividing determinism issues into environmental, physical and architectural, he argues that environmental determinism should be used broadly to reflect the belief that "it is nature within the setting of our geographical, social, and cultural environments, rather than nature, our heredity, that shapes our values and behaviour." (Lang, 1987:101).

Gans (1968) described a man-made artefact proposed by the planner as a "potential environment", the social system and the culture of people who will use it determine the extent to which it becomes an "effective environment". This effective environment can thus be defined as that "version of the potential environment that is manifestly or blatantly adopted by the users" (Gans, 1968:6).

3.3.6 Social interaction and built environment

"Social interactions occur more easily when people's social needs are balanced by a sense of individual autonomy that comes with privacy" (Lang, 1987:160).

The present studies of social interaction have treated space as a significant factor in social transactions (Canter, 1975, Patterson, 1968). According to Lawton(1972). People influenced their social setting by making alterations to the spatial setting, through the selective use of spaces and physical features, to achieve certain interaction outcomes in the service of personal need.

Recent literature suggests the existence of a strong relationship between built form and social interaction patterns (Lang, 1987). One of the most significant impacts of design on behaviour is said to be that of facilitating or discouraging interaction among people (Canter, 1970). At the same time it has been shown that use of spaces has influenced the social relationship and interactions among the users (Knowles,1972). On the whole people's relationship with the physical setting, as Canter suggested, appears to have a lot to do with their interactions with others (Canter, 1975). Broadbent(1973: 161) argued that:

> "Whether we are designing a house for an individual family or the development plan for an entire city region we shall be concerned with the ways in which people interact, and, ideally the pattern of their interactions will determine the relationships of various elements in our design."

Any standing pattern of behaviour is accompanied by a certain state of interaction with others. The built environment, while providing territories or space for accommodating individuals and activities, can be functional in regulating interactions. The very way spaces are arranged and configured affects people's ability to control interaction with others. The perceived appropriateness of design of a physical setting can, in part, be subject to correspondence between quantities and quality of interactions provided by design, and that defined by users.

The fact that organisation of space and spatial structure is related to social interactions and relationships between people is now generally accepted (Yancey, 1972). Despite this growing awareness there has been little conscious consideration given to the use and structuring of space, as it relates to the regulation of interaction between people in both research and practice. As a consequence, little is known about the ways in which design enables or inhibits social transactions. The need for understanding the relationship between design and interaction processes among people and the development of theories about its use for design process has been stressed (Canter,1970).

3.3.7 Decision-making process

The decision-making process is essentially important in the design process, particularly in housing design. It makes a direct impact on the man-environment relationship since it concerns the position of people in the environment and how it influences them. How people actually reach decision-making is a question that has received much attention from researchers. As Allsopp (1974) notes, the decision-making should eventually express and reflect all human needs. Thus when the decision-making process is closely associated with human behaviour, people must be allowed to play an important role in this process, because: "Architecture is not for architects; it is for people, and whatever architects may think and whatever theories they may have, it is through the senses that people feel architecture" (Allsopp, 1974:3).

Involving people in the decision-making process has been emphasised for several reasons. First, people have different reference points against which they can weigh up the expected outcomes (Kahneman and Tversky, 1979). Therefore, people are major performers of living activity in the environment due to "the physical environment of man, especially in the built environment, which has not been, and still is not, controlled by the

designers" (Rapoport, 1969:1). Secondly, "one of the hallmarks of man-environment research is the realisation that designers and users are very different in their reaction to environment" (Rapoport, 1982:16). Because of this difference of value and belief between architect and users, people have to play their part in the decision-making process.

Furthermore, users would like to share the responsibility and make the best decision in design action because, "whether rich or poor, healthy people will almost always take care of what they are responsible for. They will usually make the best decision that their knowledge and experience allow" (Turner, 1989:171). A natural relationship to support housing design has been emphasised by Habraken, in which he claims the architect should provide the contact with the occupants and accept "the return of consultation and involvement on the part of the users" in the design process (Habraken, 1972:3).

Finally, decision makers should involve the users in the design process to understand housing choice and the criteria which people employ to decide where and how they live. This is very important for anyone trying to successfully design housing. As Turner(1976) stated: "The issues of who decides and who does for whom, is a question of how we house ourselves, how we learn, how we keep healthy" (Turner, 1976:13). This message has not been needed in most developing countries where the people are denied the freedom to make decisions about the choice of environment suitable for their socio-cultural values and lifestyle, because the Governments dominate this process and others have the power to make decisions.

3.3 8 Applying Experiences

This section explores the suitability of various forms of housing for particular groups and the possibility of applying experiences derived from others. There is the danger that problems may be copied, but the advantage is that it draws attention to what lessons can be learnt from other cultures or even from our own culture. Such a study will help to clarify the suitability and acceptability of various environments, as well as the ways in which acceptability and suitability of new urban housing forms can be improved (Rapoport, 1980). In considering housing in urban or suburban areas for "normal family life" it is clear that "normal family life" varies with the values, way of life and ultimately, culture: normality is in the eye of the beholder (Rapoport, 1980: 119).

The designer must avoid overgeneralization when applying experiences gained from different cultures. It is important to know which special variables influence the socio-cultural values for particular groups. "when copying, designers usually tend to copy the hardware" (Rapoport, 1983:251). Two studies done by Rapoport (1983) provided interesting and useful lessons for the problem of applying experiences, particularly for developing countries like Libya. Examples from the Sudan and from Nigeria, may help the researcher to clarify this problem, particularly since the same basic mistake was made in each case. In Sudan (Figure 3.5), one finds that the traditional homes have separate men's and women's rooms, an open sun-shade, a cooking space, various traditional spaces and a grain store which has great significance. There are highly specific arrangements of settings, expressing separations and linkages of people, privacy, transitions, and providing for a range of activities, and so on. This arrangement was completely lost in the copy dwelling (new home).

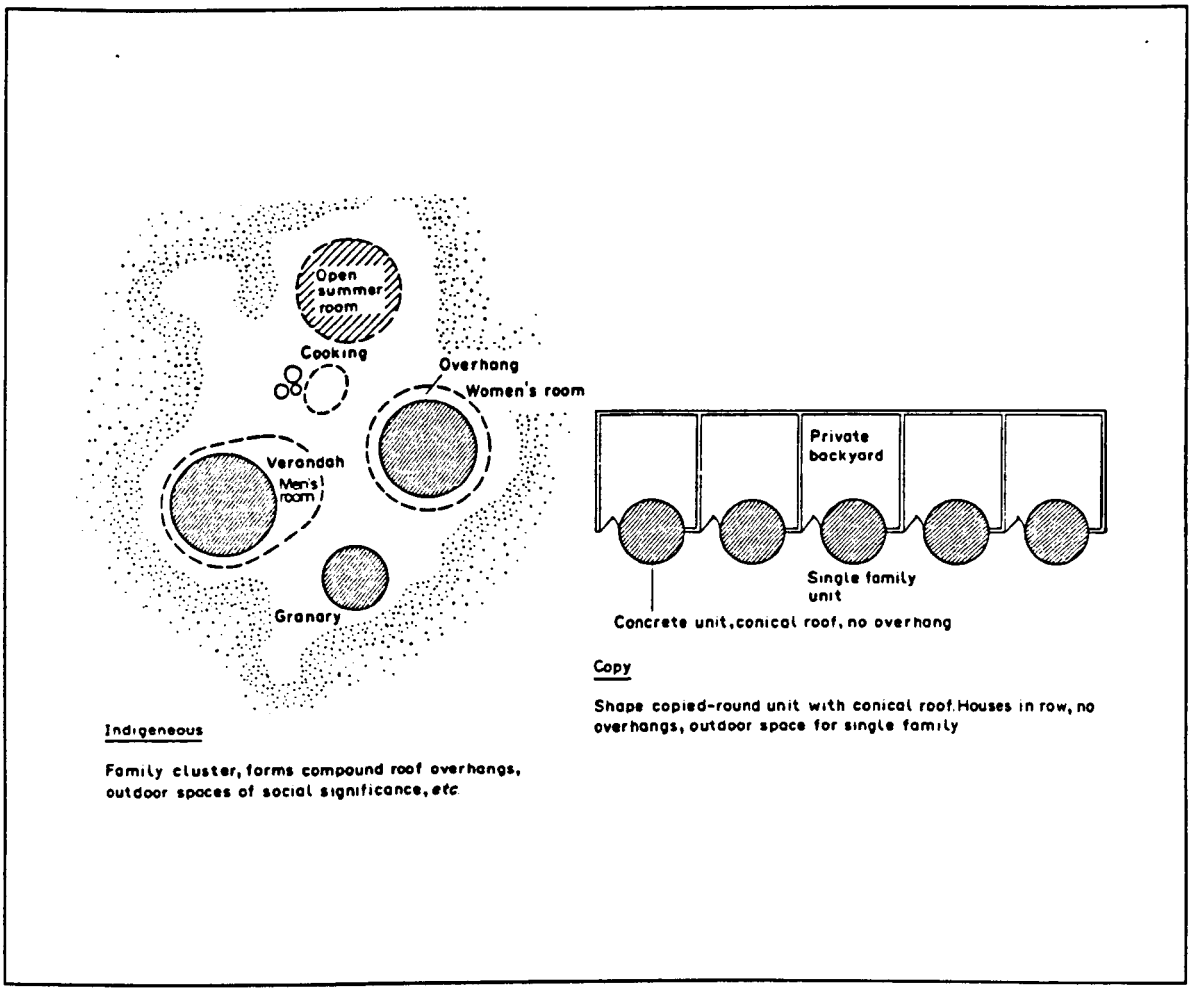


Figure 3.5: Shows the difference between a copy (new) house design and indigenous house in Sudan

Source: Rapoport (1983: 225)

In the Nigerian example (Figure 3.7), the compounds seem very similar in principle, although different in detail; they also appear more complex, although less information is given. In this case the solution seems even more simplistic and hence less satisfactory. One finds two rows of little round concrete units with conical roofs sitting in a large open, featureless plain. All the complex relationships have been lost, only the shape remains.

From these examples one can understand that the wrong things were copied. The copy dwellings (new) appeared completely different; spatial organisation, privacy mechanisms, relationship between men and women, between people and animals and local building materials have all been neglected. At the same time lessons can be learned by analysing such housing, and there can be applied across cultures by allowing the people to choose the environment with appropriate physical and social qualities.

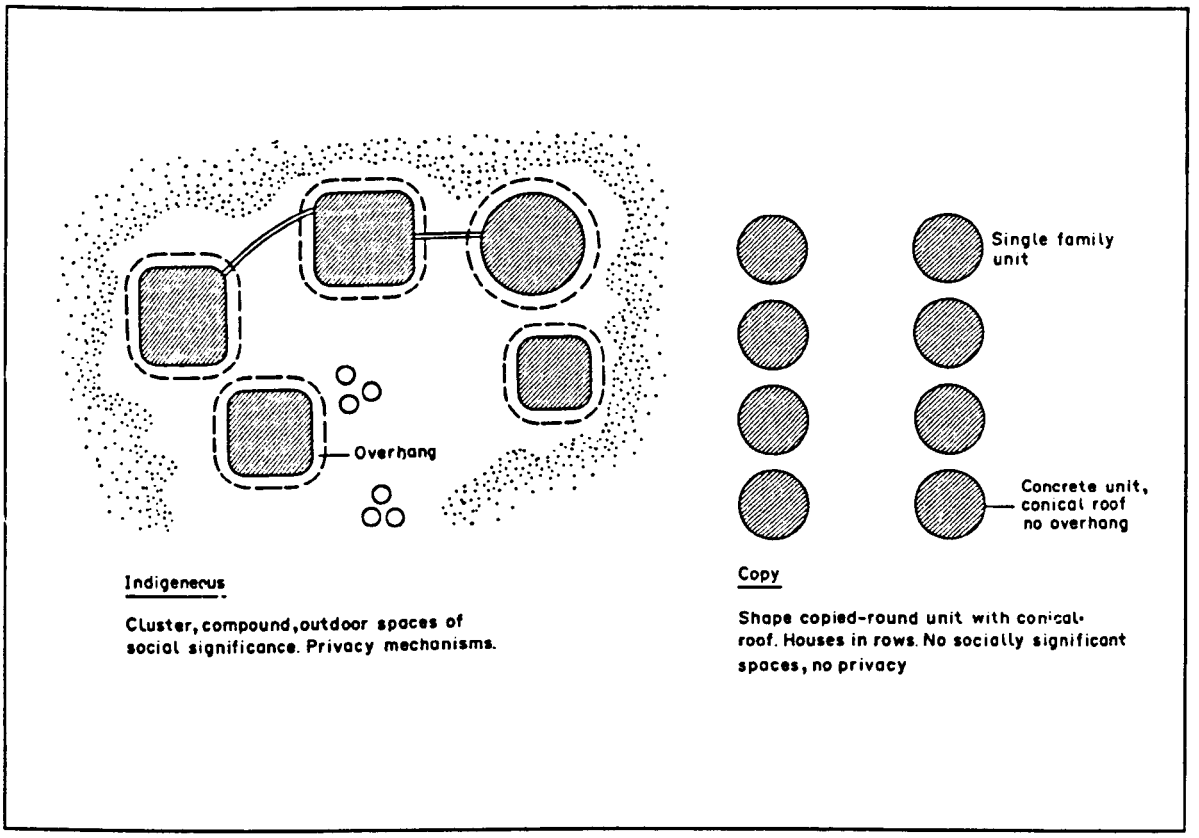


Figure 3.6: Shows the difference between a copy (new) house design and an indigenous house in Nigeria

Source: Rapoport (1983 :225)

3.4 Summary

The main purpose of this chapter was to review the literature relevant to the subject matter. The Author has pointed out the necessity for discovering residents' socio-cultural values and the definition of these values, as well as some approach to designing for these values before the design stage of the housing. The literature discussed five main social values. The main concern in choosing a dwelling must be giving the users the opportunity to select a dwelling which meets their needs for privacy and centaurs devices to control unwanted intrusion. Also security/safety is mainly concerned with the protection of users' possessions from crime and to ensure the safety of their children from traffic accidents. The chapter also dealt with the importance of religious values and their influence on the way of life. Prestige is reflected in house design and inspires respect and indicates social status. Socio-cultural values have played an important role in determining the housing design and shape of the built environment. Furthermore, designing for socio-cultural responses to the built environment the follow approaches were discussed: the quality of the environment; perception and the environment quality; the gap between designers and users; design, use of space and human behaviour; mode of design and behaviour relation; social interaction and built environment; decision-making and applying experiences.

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CHAPTER FOUR

CHAPTER FOUR

RESEARCH METHODS AND MEASUREMENT TECHNIQUES

Table of Contents

4.1 Introduction

This chapter deals with the way in which the research was approached and carried out. It explains the various techniques of measuring, sampling and collecting data. The empirical methodology used to measure people's satisfaction and housing preferences, is described. It was based on the use of a systematic investigative procedure and a face-to-face approach in order to achieve the following objectives:

- To measure the degree of users' satisfaction with traditional and contemporary housing in terms of the opportunity given to choose their dwelling, privacy, security, religion, prestige within the settlement, neighbourhood and dwelling.
- To identify people's preferences for types of housing related to their privacy, security, religion, choice, prestige, neighbourhood and settlement.
- To evaluate the selection of housing designs which respond to the needs and desires of the occupants.
- To assist public authorities and private investors by establishing a systematic procedure capable of identifying and weighing the inhabitants' basic needs and preferences; to determine the major elements and characteristics of a home desired by a given group of people; and set out the sought-after relationships between these elements as viewed and prioritized by that given group of people.

The empirical methodology adopted direct communication techniques such as design experiment, questionnaire, interview, observation and physical survey. The secondary data were sought from documentation (both published and unpublished). A pilot study was conducted to test the suitablity of the various techniques for examining of people's satisfaction with their built environment related to their socio-cultural values. All the data

were collected, and built into a computer file and were analysed using the **MANITAB** package programme, which is available in the University of Newcastle.

The investigator made one fieldwork-trip to Libya for the purpose of collecting data. This fieldwork took place between 15th November 1994 and 10th May 1995 (this was a suitable time to make contacts with the government agencies, schools and universities that reopen after the summer holiday).

4.2 Research approach

The aim of the research is to examine a specific problem in a specific context, i.e., to measure the response of traditional and modern housing to socio-cultural values through examining people's satisfaction in both traditional and contemporary settlements in Ghadames city. The pilot survey and the literature review suggested that five main socio-cultural values could be closely related to people's satisfaction with the housing units. This led to a decision about what observable elements to examine and measure for each state of each socio-cultural value in both traditional and contemporary housing. The investigator was focusing on measuring socio-cultural values (privacy, security, religion, freedom of choice and prestige) at three levels: Firstly to examine users' satisfaction with their settlement (i.e, location, quality of basic system, public services, etc.). Secondly to examine residents' satisfaction with their neighbourhood in terms of the choice of neighbourhood, privacy, security, religious faclities and prestige, and thirdly to examine respondents' satisfaction with their dwellings in terms of the choice of dwelling, privacy, security, religious and prestige. The usefulness of research activities is strongly influenced by the clarity and accuracy with which the researcher translates the actual

meaning of key variables within the theoretical framework into or practical, explicit descriptions (Blalock and Blalock, 1982).

The objective of the measurement was to establish a set of relationships between the different states of the diverse types of traditional and contemporary housing design. This enables a comparative study of the setting of socio-cultural values of tradition and modern housing. This in turn, will identify which type of housing successfully meets the traditional way of life through understanding people's satisfaction with their built environment, and to establish coherent characteristics of appropriate housing in Libya, particularly in Ghadames.

4.3 The survey Strategy

The first step in the methodology was the selection of a case study for probing into specific situations and circumstances of the subject under investgation. In this study Ghadames City in Libya was chosen for investigation and this was presented in a separate chapter. Different techniques were employed to investigate the impact of socio-cultural values on housing design in Libya.

4.3.1 Scope of the survey

The survey was begun by the selection of a sample to reduce the scope of fieldwork investigation to a manageable size. Attention was confined to Ghadames city in Libya and focused on a small sample of subjects from a defined population. The investigation was directed, on a comparative basis, two types of housing, traditional and contemporary. Another primary concern regarding the sampling process was the determination of a sufficient sample size for making reliable results. Thus, a sample size of about 25% of the

total household population in 616 housing units was chosen. Compared to similar studies, this percentage is significant. The inhabitants were selected randomly for the two target questionnaires: users' satisfaction and users' preferences.

4.3.2 Survey Instrument

Prior to constructing the fieldwork survey, it is important to decide by which mode the survey is to be conducted. The researcher's decision was to adopt the face-to-face technique for data collection. The selection of the direct communication technique for gathering data is based mainly on the following factors:

1) The difficulty of conducting a mail questionnaire due to its inappropriateness in the society. People seldom use the mail, especially within the city.
2) The Islamic difficulty of conducting telephone interviews, particularly with women, because of the social and cultural background of the society.
3) The desire to give more opportunity to all family members to participate in answering the questions. Moreover, the side talk which usually takes place during the filling in of the questionnaire is of great importance because it reveals some aspects which may not be covered by the questionnaire. Figure 4.1 gives a brief overview of the advantage and disadvantages of mail questionnaires and personal interviews.

Techniques	Strengths	Weaknesses
Mail	Can be answered at the convenience of respondent. Can cover large samples.	Cannot be used when the level of illiteracy is high Inability to secure spontaneous answers. Order and sequence of questions is not controlled by researcher which bias the responses. Poor response rates (20% to 40%).
Personal interviews	Interviewer makes sure respondent understand questions. Can obtain supplementary information about respondent which is important in attitudinal surveys Ability to collect observational data about respondent's dwelling.	The interviewer may influence the respondent.
Questions Design	Strengths	Weaknesses
Closed questions (usually have a series of answers from which the respondent chooses)	Speed both recording of answers and coding Simple quantification and analysis.	Force respondent to make a choice among restricted possibilities and issues he may not have previously considered.
Open questions (to which respondent can answer in his own words).	Usually more depth of meaning than a closed question which mean giving the researcher more knowledge about respondent.	Difficult to answer and to analyse.

Fiugure 4.1: Strengths and Weaknesses of Questionnaire Survey Methods

Source: Beil (1982), Lansing and Zehner (1970)

4.3.3 Scaling Method

According to social science research and similar studies three scaling methods are widely used to measure people's opinion or satisfaction with their built environment. These are Likert, Thurstone and Guttman scales. Most data required in the analysis of the Ghadames city study is ordinal; the most suitable scale to use was the Likert scale. In this scale three categories of responses are provided for each item: satisfied, neutral and dissatisfied. Other expressions can be used such as, agree, they are equal and disagree. In this three point continuum, weights of 1, 2, 3, or 3, 2, 1 are assigned, the direction of weighting being determined by the unfavourableness or favourablness of the response.

The Likert scale is not restricted to just three points. Many studies have used five or seven point scales (for example Mayo, 1979 and Dorfman, 1979) depending on how detailed the data is required to be. However, the five item scale is the most widely used in research, therefore the investigator used this level of scale to measure residents' satisfaction with their built environment. Before the main survey a pilot study was carried out to test the suitability of the five point scale and the degree of the residents' responses to this technique.

4.4 Data Collection Techniques

This section explains the techniques of data gathering, the use of the design experiment, physical survey and observation, questionnaire, interviewing and secondary data. A pilot study was carried out to gather more information on the case study and to test the reliabilty of the data collection techniques used. The strategy for investigation was based on three levels; firstly, people's satisfaction with dwellings; secondly, satisfaction with the neighbourhood, and thirdly, satisfaction with the settlement. Figure 4.2 describes the strategy for investigation to be used in the study.

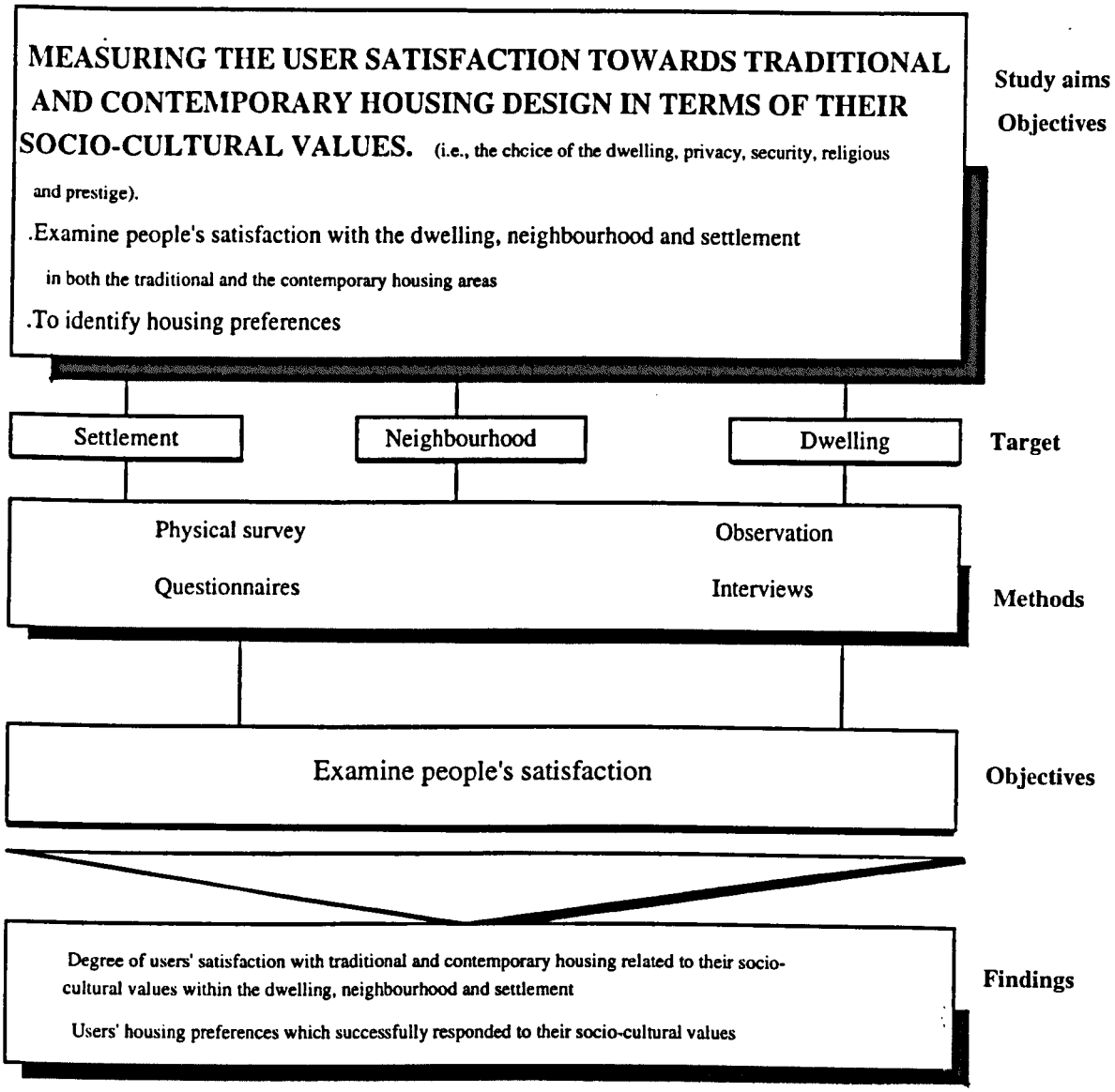

Figure 4.2: The strategy for investigation

Source: The Author 1994

4.4.1 Planning and Pilot study

During the planning stage the researcher decided what type of methods were to be used for the fieldwork, such as questionnaires, interviews and so on. These methods must be suitable for the research objectives and should not give the investigator problems at the analysis stage. A provisional questionnaire form was designed for both residents and key figures in Ghadames city as well as a checklist for the physical survey. This survey was

carried out between 15th November 1994 and 3th of December 1994. The aim of the survey was to test the suitability of the various techniques to be used in the survey proper and to find an appropriate way to gather data from different government agencies. The pilot survey was beneficial not only in examining the validity of the various techniques, but also in learning more about certain aspects of interviewing techniques in such circumstances.

> "All data gathering instruments should be piloted to test how long it takes recipients to complete them, to check that all questions and instructions are clear and to enable you to remove any items which do not yield usable data".
>
> (Bell, 1987: 65).

4.4.1.1 Size of pilot study

The pilot study sample was 10% of the actual sample. Nineteen households were selected from the city of Ghadames for two target questionnaires: users' satisfaction questionnaire and users' preferences. This was done to understand how the questionnaire would operate and to obtain interviews' confidence in dealing with different types of occupants. Hence the questions and the general approach could be tested so as to reduce problems in the main survey.

The outcome of the pilot study made it easier to decide the best sample for the survey proper so as to gain appropriate information. Two residential areas (which are described briefly below) were selected, one from the traditional settlement and the other one from a contemporary settlement. These areas were chosen to represent all features and design types for both traditional and contemporary housing.

4.4.1.2 Pilot study samples selection

Two residential areas, traditional and contemporary were selected for this survey in order to examine the housing appropriateness to the local socio-cultural values and way of life. In order to understand what a 'culture-responsive' environment is and how it works, attention was directed to specific areas of these settlements. The areas for the pilot study were selected on their representiveness as regards specific geo-social characteristics of these settlements. Seven houses were chosen from the traditional settlement, according to the number of neighbourhoods (tribes), and six houses were chosen from the contemporary settlement, acording to public housing type (figures 4.3 and 4.4). Both settlements showed different housing conditions that identified the differences between them, especially in the area of housing design.

The primary survey collected data from the Ministry of Housing and municipality of Ghadames such as base maps, reports and statistical materials for both settlement types. The researcher also consulted some architects who gave guidance, advice and information about the case study areas to find an appropriate way to gather data from the different government agencies. Each sample area was visited, where sketches were made and photographs taken as part of the survey objectives.

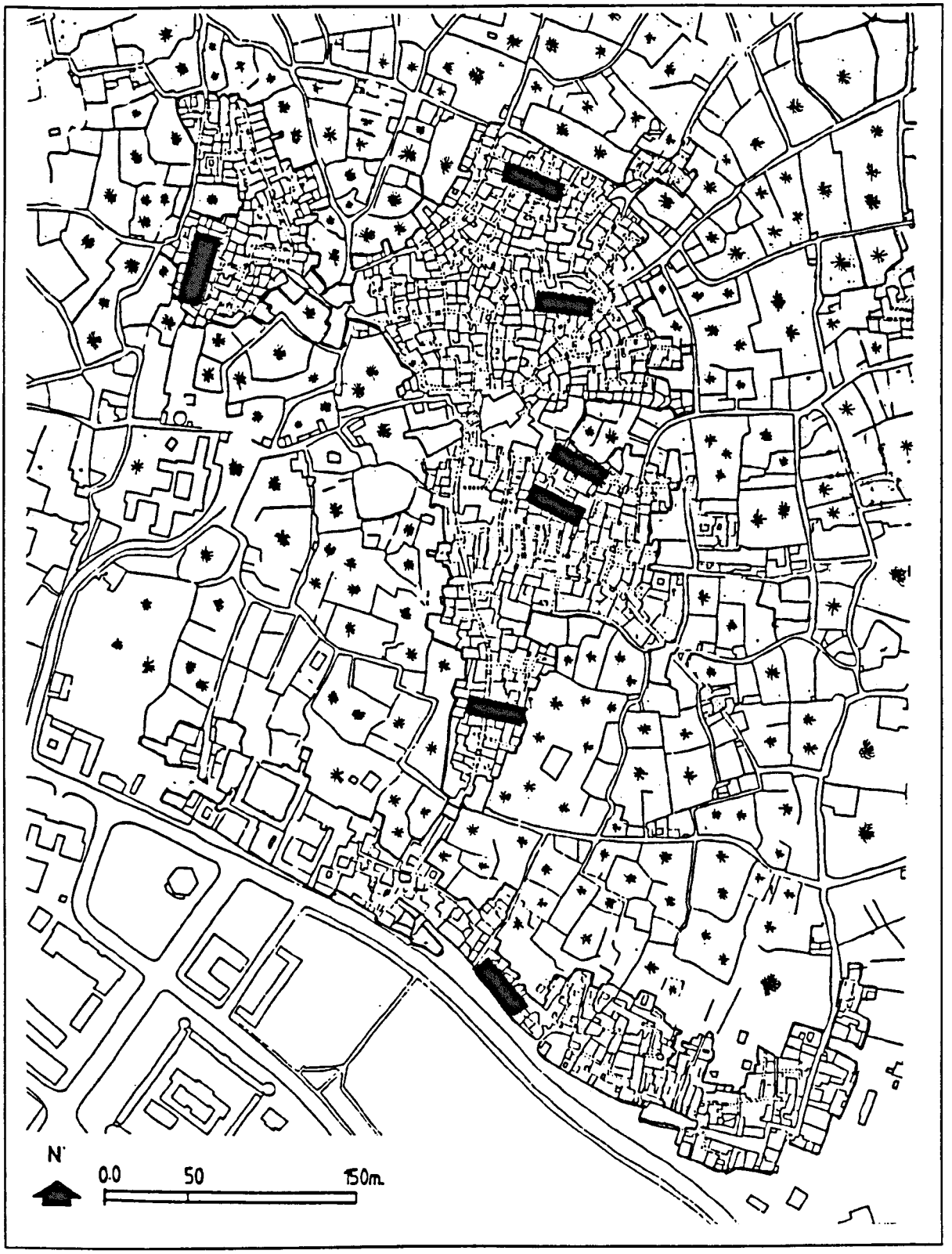

Figure 4.3: Samples location of houses in traditional settlement of Ghadames

Source: Fieldwork, 1995

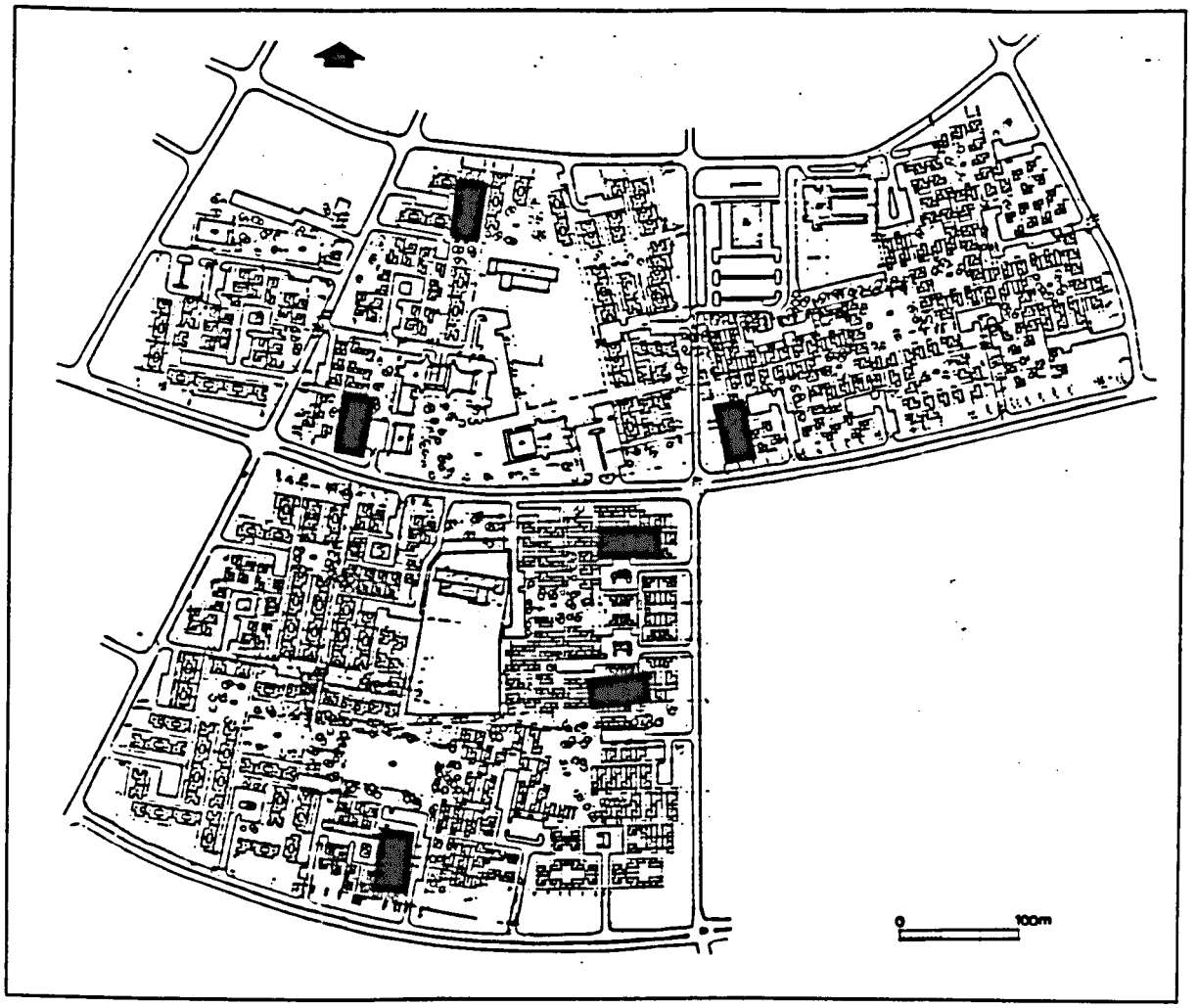

Figure 4.4: Samples location of houses in contemporary settlements of Ghadames

Source: Fieldwork, 1995

4.4.1.3 Results of the of the pilot study

The result of the analysis carried on the pilot survey responses revealed the need certain alterations to the questionnaire, interviews, physical survey and other sources of data collection that were had for the final survey.

I) The use of the questionnaire: The analysis of the responses collected during the pilot survey revealed certain areas of the questionnaire that could affect the reliability of the data collected. These areas were:

1) Language: Similar words in the questionnaire and in the measurement scales sometimes confused interviewees.

2) Specification: Specifying a group of people to answer a particularly sensitive question can be offensive.

3) Order of questions: Sensitive questions were found to be answered better when asked towards the end of the interview, as by this time a level of trust has been established between the interviewer and the interviewee.

4) Length of question: Long questions were found to be undesirable.

5) As most of the households interviewed were represented by men, little information about the women's degree of satisfaction was collected. This was because most of the women are housewives and do not go out.

II) Interviews: The pilot study revealed that the research required direct contact with residents and key figures. It was necessary in order to obtain specific information that offered a better understanding certain specific characteristics and gives freedom to the researcher to discuss matters not included in the questionnaire. However, the pilot study suggests that the time of interviews is carried out should also be carefully planned, each interview conducted token between twenty and thirty minutes particularly with key figures.

III) Physical survey: Important information concerning, in particular sociability and the activity system in the area was collected by the observation of outdoor activities, such as the data concerning the relationship between the occupants' activities and the suitability of the outdoor space as well as indoor space. The researcher needed assistance from the students in the school of architecture in Tripoli and the local architects in Ghadames especially in terms of taking measurements for housing and drawing plans.

VI) Other Sources of Data collection: Almost all the data gathered was from the field investigation, however some secondary data was collected and was found to be useful during the pilot survey, especially the data providing a more understanding of the problem such as relevant books, articles, journals and studies. The pilot study revealed that all these material need meetings with local authorities, architects, planners and especially the Director of the Ghadames municipality in order collect that information.

4.4.2.1 Main survey procedure

The researcher started the survey by commencing the administrative work, which was followed by a few steps before the main survey was conducted in the field. These included:

1) Permission was obtained from the municipality of Ghadames for carrying out the research, particularly the questionnaire, photographs and document collection.
2) Preparing the materials and tools required for the survey such as tracing paper, pencils, field notebooks, camera, films, and so on.
3) Printing and photocopying the required number of questionnaires.
4) A letter from the Ghadames Authority was attached to the questionnaire form. Its purpose was to introduce the research objectives to the residents, and to inform them about the importance of this study, as well as to urge them seriously to respond to the attached questionnaire.

4.4.2.2 Physical survey

This section is mainly concerned with the physical aspects, the types and the layout of neighbourhoods. One of the most important parts of the main survey was to provide the physical context for the more detailed information obtained about housing and household cultural values.

The physical survey investigated the design concept, the internal living environment, the exterior features and the construction techniques of each house type for both indigenous and contemporary housing. Architectural drawings (plans, sections, elevations and photographs) for each house type were collected. The layout of the neighbourhoods also was studied to illustrate how the residential units are grouped, the relationship of the houses, the public space in the neighbourhood and the street pattern to the users' cultural values. The researcher was given detailed information on the actual way people use space in their dwellings in both types of housing.

The site observation survey showed how spaces are used within the area around the house, the daily life occupancy, use, degree of cultural values such as privacy, security access and transformation activity. Much was learned by observing what people actually do and how they do it (Peil, 1892). Observation involved more than just looking at what was going on, it included listening, asking questions, drawing sketches, taking photographic evidence and sometimes the investigator participated in the activities of the group to get more information about what daily life involved. (Figure 4.5 describes the strengths and weaknesses of the most commonly used measurement techniques).

Patton (1990:202) highlighted the importance of data collected by observations. He wrote:

> "The purpose of observational data is to describe the setting that was observed, the activities that took place in that setting, the people who participated in those activities and the meaning of what was observed from the perspectives of those observed. The description must be factual, accurate, and throughout without being cluttered by irrelevant minutiae and trivia".

	Type of observation	Strengths	Weaknesses
1	Distant observer (secret outsider, unseen by the people observed)	Unobtrusive	Gives only an overview of situation
2	Full participant (adapts a position to the situation studied)	Unobtrusive full understanding of situation.	Involvement may increase subjectivity. Observer can be deliberately deceived.
3	Marginal participant (adopts position of a commonly accepted yet not involved participant)	Unobtrusive. Good understanding of the situation.	Familiarity with position adapted may lead to over looking important facts.
	Measurement devices	Strengths	Weaknesses
4	Notation	Simple	Observer has to decide on the spot what to record and what to over look.
5	Maps	Particularly useful to record several people in one area at the same time.	Difficulty to observe an area simultaneously.
6	Checklists	Provide quantifiable data.	Demand previous diagnostic
7	Photographs	High illustrative quality	May raise ethical questions

Figure 4.5: Strengths and weaknesses of different observational methods.

Sources: Altman (1974), Peil (1982), Gans (1967) and Ittelson et al (1976).

The field survey site reconnaissance was made to get first hand information, both qualitative and quantitative, about the problem. This reconnaissance was specifically made to generate information regarding:

1) Design characteristics (social, cultural and physical environment);

2) Technical characteristics (building materials and construction techniques);

3) Physical conditions of residential environment (quality of built environment) and residents' characteristics (social interaction).

The site reconnaissance gave the researcher a more integrated picture of the quality of life and the components of the selected housing, both indigenous and contemporary. This assisted in the understanding and the interpretation of some of the attitudes and responses

of residents obtained in the field survey. For this purpose, a technical observation checklist was prepared and was used for recording the findings of the site reconnaissance. The physical check-list is intended mainly to collect as much information as possible about the physical site and the architectural elements of the shelter, although it is difficult to prepare a check-list that covers all of the architectural elements and then classify them according to the varieties of form or materials commonly used in the houses of Ghadames. (appendix 2).

4.4.2. 3 People's perception of their houses

(I)Interview survey

Personal interviews: the researcher must decide on the type of interview which is most likely to produce the information required (Bell, 1987). Beil,(1982:97) also maintained:

> "Questions can be asked in an interview, or impersonally through a questionnaire, about many things which cannot easily be observed: beliefs and values, memories and future plans".

In this section data were collected by means of personal interviews and open informal discussions with residents, especially old men and public authority personnel involved in direct decision making issues. The personal interviews were also extended to practitioners including planners, engineers and architects. The open-ended questions of the interview covered a wide range of topics including the historical background of the selected houses, both indigenous and contemporary. Another set of questions, dealing with interviewees' concerns, expectations and satisfaction were also presented. A major advantage of this personal approach is that it usually produces more satisfactory results than a mail questionnaire (Beil, 1982). Moser and Kalton, (1972:271) describe the survey interview "as a conversation between interviewer and respondent with the purpose of eliciting certain information from the respondent".

(II) A Key figures interview questionnaire

Public perception of the nature and purpose of the survey is very influential on its outcome. Great importance was attached to preserve publicity which influences the response rate and the nature of answers to a questionnaire. In order to prepare the ground for the main survey, and to obtain the necessary publicity, the investigator made appointments to interview several key figures in the city of Ghadames.

In these interviews the investigator was able to speak directly to key figures. Additional relevant information was collected, such as the main socio-cultural problems, which Ghadames people faced in the contemporary dwellings, as well as the way in which living patterns have changed in the modern dwellings, and, as a result, the socio-cultural problems they faced.

(III) Residents' interview questionnaires

The aim of these interviews was to to find out what the people thought about the way in which their contemporary houses related to their socio-cultural values, compared to their previous traditional houses. A further aim was to discover if the occupants of the modern houses' satisfaction with their internal and external environment related to their cultural values. Different interviews were carried out with very well-known residents of Ghadames city.

(IV) Questionnaire

" It is very important to know exactly what you need to find out" (Bell, 1987: 58). The data in this section were obtained by means of two separate questionnaires. First, to obtain data required for evaluation of the user satisfaction with the dwelling and its surrounding environment, (their general feeling, attitudes and views towards certain aspects of design of the dwelling and its components). The second questionnaire dealt

with inhabitants' housing preference. In the following discussion the process of designing each questionnaire will be presented. (The questionnaires were translated into Arabic).

(1) users' satisfaction questionnaire

This questionnaire was designed to collect data regarding:

1) Background information, including profile data and demographic characteristics of the inhabitants.

2) Factual information regarding the physical characteristics of the respondents' residential setting.

3) Information dealing with the respondents' satisfaction with their traditional and contemporary housing in terms of reponse to their socio-cultural needs.

4) Perceptual information including the inhabitants' attitude and motivations with respect to the socio-cultural values and physical environment of their present homes and their evaluation of the context of their residential setting.

Background data was collected including sex and marital status, age, occupation, household type, household size, annual income and place of birth. This type of information seeks to order and serve in organising the information that was collected and to allow the researcher to establish patterns within the findings. Background data is also useful in checking the representatives of the chosen sample, vis-à-vis the study of population as a whole.

Perceptual data regarding traditional and contemporary housing circumstances, social, cultural and physical characteristics of their housing context and their immediate neighbourhood within which most of the respondents' social interactions occur.

Expectations and desire of inhabitants in the light of their actual housing needs in terms of housing privacy, security, religion, prestige and spatial organisation that relates to their socio-cultural values. Questions in this section were designed so that the respondent could choose the most desired option from a list of options.

The last section of the questionnaire dealt with the inhabitants' attitudes towards their dwellings and surroundings and the type of modifications that they made to make their dwellings more suitable for their socio-cultural values requirements.

(2) Housing Preferences questionnaires

In this section the focus is on the investigation of housing priorities and preferences as perceived by a Libyan citizen. People are deeply concerned with their dwelling types. They spend much of their day within the confines of the house, which also represents the cultural and social status of the individual in the eyes of the community. This questionnaire was dealing with general characteristics that people are often concerned about and which have been proven to have a strong influence on people's perception and satisfaction with their residential setting. In order to help the people being questioned, the interviewer showed them pictures of various shapes of dwellings, space arrangement, interiors, exteriors and decorations, type of streets and materials, so that they would have a clearer idea of what they were being asked to choose. The researcher tried to present this material in an interesting way so that people being asked would enjoy their participation in the research.

4.4.3 Secondary Data Collection

Some secondary data were needed to get more information about the traditional and modern settlements under study, such as the layout, maps, reports and studies. The secondary data were collected from various sources, namely:

1) The relevant books, studies, journals, articles etc., on and around the subject were taken from Newcastle University Library and Newcastle Central Library. These gave a basic knowledge and better understanding of the requirements for investigating the research subject.

2) Appropriate local data were based on the aim of the study and the findings of the fieldwork, more documents regarding the residential environment such as institutions, regulations, reports, research studies, journals, maps and so on. In this respect an official letter was sought from the researcher's sponsors (Ministry of Education) to the appropriate government agencies, explaining the purpose and importance of the study and asking for their assistance in collecting the necessary data. Hence a number of visits were made to the offices of the following:

(1) Ministry of Housing, (2) Ministry of Planning, (3) Municipalities of Tripoli and Ghadames.

The above sources provided vital references and data which enabled the researcher to complete the study.

4.5 Summary

According to the pilot survey and the literature it seemed that five socio-cultural values strongly affect residents' satisfaction. These values are the choice of dwelling, privacy,

security, religion, and prestige. The effects of each value are assessed by satisfaction within a set of parameters. For instance, satisfaction with the choice of dwelling is related to satisfaction with dwelling location, type, size, layout, building materials, and neighbours' cultural background.

Before the final survey, a pilot survey was carried out to test the reliability of the techniques used. The results of this pilot survey revealed certain areas requiring alterations. For example, it was found that the language, the specification of a group of respondents and asking sensitive questions at the beginning of the interview, were undesirable. The final questionnaire was, therefore, amended according to there findings.

Most of the data required in this research was qualitative and some quantitative. The use of the questionnaire, interviews, observation and physical survey technique were, therefore, the most suitable methods for examining users' satisfaction. Secondary data used was information that it was not possible to gather by questionnaire or other means.

After data collection, the analysis was carried out using the MANITAB package. Three main techniques were applied; percentage analysis, cross tabulation analysis and Chi-square test. These techniques were found appropriate for measuring residents' satisfaction.

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CHAPTER FIVE

CHAPTER FIVE

CHARACTERISTICS OF THE CASE STUDY AREA: THE OASIS OF GHADAMES IN THE LIBYAN ARAB JAMAHIRIYA

Table of Contents

5.1 Introduction

The traditional settlements of the Libyan desert are mainly found in the chains of oasis settlements stretching from the east to the west of the country, i.e. Ghadames, Ghat and Murzuk. Following the discovery of oil, these oases' economies have developed rapidly, causing great changes in the housing environment. Ghadames oasis is a good example of the clear differences between contemporary and traditional Arab built environments. It is located in the Libyan Sahara Desert and forms a part of the sub region of Gharyan, one of the five sub regions of the Tripoli region. It lies 630 km south-west of Tripoli, close to the junction with the borders of Algeria and Tunisia, situated at an altitude of 350 meters above sea level (figure 5.1). It is a very important trade route, connecting central Africa with the Mediterranean sea coast. All these factors make Ghadames a most important Libyan city. In fact, it was added to the World Heritage list of historic monuments by UNESCO in 1987. The aim of this chapter is to present the general aspects of Ghadames oasis, such as the historical background, climatic conditions, natural features and social life. However, it deals mainly with the characteristics of traditional and modern houses in the city. The study of its architecture is useful gives a general idea of the evolution of the oasis, its response to environmental conditions, and the socio-cultural requirements which determined certain architectural characteristics and forms. This study will be used to identify the suitablity of the case study in measuring people's satisfaction with their built environment, in both traditional and contemporary houses, as related to their socio-cultural needs.

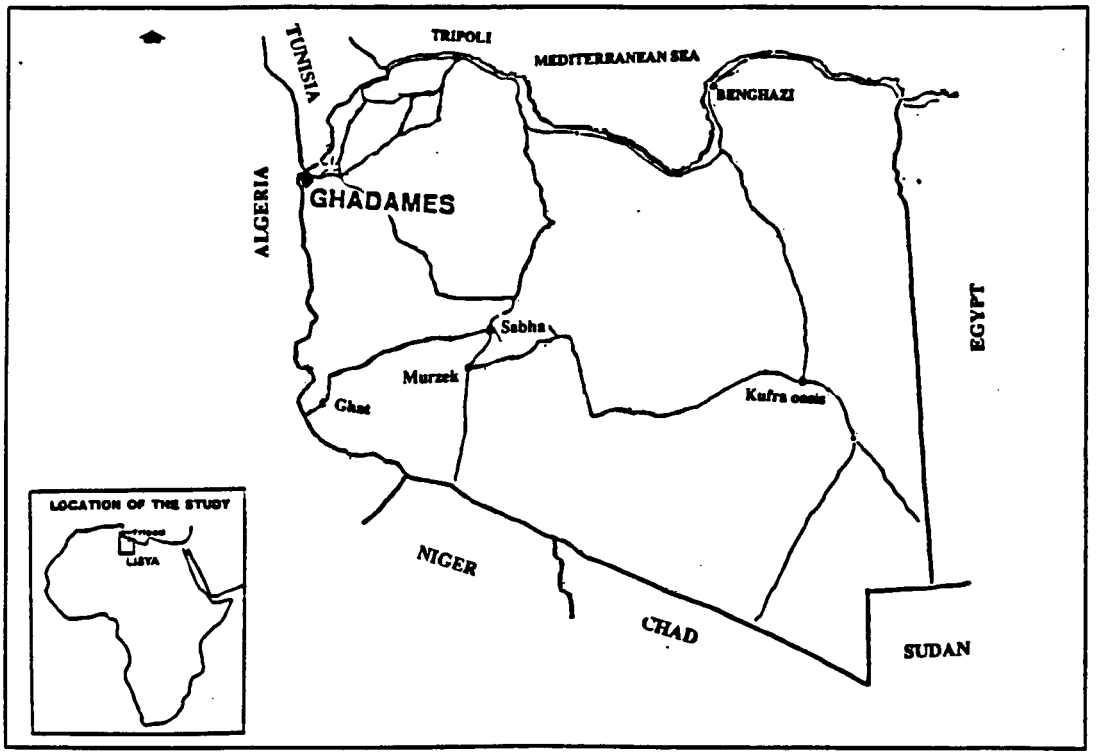

Figure 5.1: Geographical Location of Ghadames

5.2 Ghadames: general aspects

5.2.1 Historical background

Historically Ghadames was located on an important caravan route before the present era. One historical story records that a party of travellers from Yemen passed through the valley where Ghadames is located. They stayed overnight and when they moved on in the morning forgot their food container. Later, they remembered that they had left it where they had eaten lunch the previous day. A horseman returned to find the container, the horse dug in the earth with its leg and water came out. Hence, the spring became known as the "horse spring" (Eyn El- Faras). This story explains the origin of the name Ghadames which means "lunch of yesterday", the Arabic name contains two words, **Ghada** meaning "lunch" or "food" and **Ames** meaning "yesterday".

This story is well known among Ghadames people and it reveals that the original oasis inhabitants were Arab (Shaikh Qassim, 1991)[1] Ghadames oasis has been colonised by many countries, as has the rest of Libya. Palaeolithic and Neolithic implements have been discovered in the surrounding areas. In 19 BC, the Romans colonised the country when General Cornelius Bolbus camped in the oasis, which they called Cydemus. Under the Libyan-born emperor, Septimus Severus, it became the third advanced post, 200 km to the south-west of the Roman "limes". The old Roman castle now known as "Al-Asnam" and Frost still remain about 7 km to the north of the old town of Ghadames in a place named Neft. In Byzantine times it had a church and a bishop. The oasis was conquered by the Arab army sent by Omar Ben El-Ass in 47 A. H. (667 AD) after which Islam became the predominant religion.

In 1860 AD the Turkish governor of Tripoli appointed a council of noble families under a Sheikh, to administer the affairs of the oasis. The Turkish fortress standing in the south west of the old town dates from this period and housed a small garrison. Today, the Turkish fortress houses the local museum.

In 1911 AD the Italians occupied the oasis and established themselves permanently in Ghadames. During this period several administrative buildings were constructed along the southern boundary. Inside the oasis they built a small hotel which is still in use. The Italians left shortly before they lost Libya as a colony in 1943. However, in the Second World War about 400 houses were damaged, several ruins of which can still be seen. Only about half of the damaged houses have since been reconstructed.

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[1] *Qasem Ali El-Arbi (Qasam Eli Learbi), better known as Qasam o-eali, from the street of mazeean in the Walid quarter. He was born in 1900, and throughout his life has been interested in Ghadames song of all types. At present he is the oldest person in Ghadames city and he has an excellent historical knowledge about history of Ghadames.*

5.2.2 Population growth

The population of the oasis of Ghadames was estimated by Lars Eldblon (1968) in 1850 to be about 7,000, and by 1952 had dropped to 1,900. During this time most of the inhabitants had emigrated to Tripoli, Tunisia and Algeria. There is a relationship between the decrease in population during this period and the decline in trade. In 1973 the population had increased to 4,000, to 5,400 by 1980. By 1990 the population had reached 14,700 and it is estimated that it will reach 20,000 by the year 2000, as a result of improved economic conditions. According to the estimate given by Polservice (1981), Ghadames will be the third largest town in the subregion, population size, after Gharyan and Azintan (figure 5.2 presents Ghadames population growth).

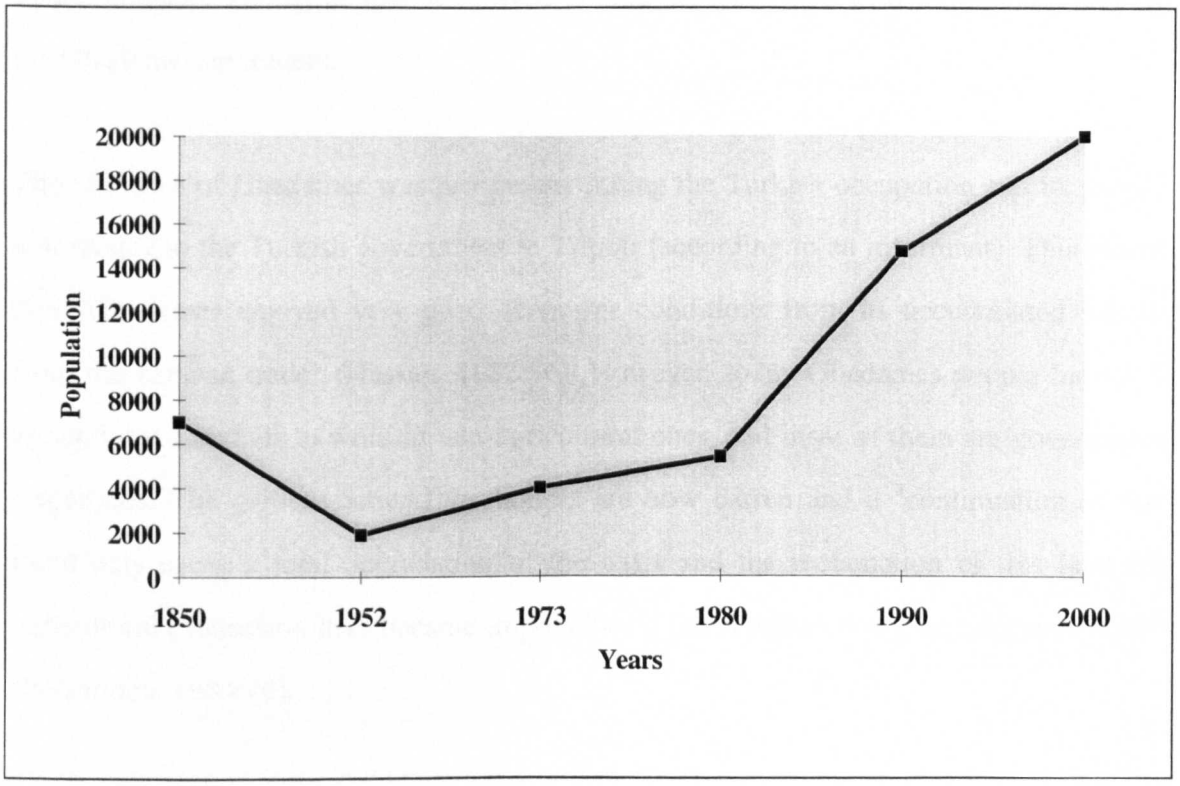


Figure 5.2:The population growth in Ghadames

Source: Lars Eldblon 1968 and Polservice (1981)

5.2.3 Economic background

In recent years, the majority of the Ghadames oasis population worked in trans Saharan trade , salt production and agriculture. All sources agree that trans Saharan trade was the essential activity of Ghadames (Hassan, 1982). This activity represents the economic basis for the past growth and the present development of the city since the discovery of oil in Libya.

In former times the old town of Ghadames was a meeting place for caravans coming from the interior of Africa bringing, gold, slaves, leather and hides; on the return journey they carried cotton, cloth, sugar and other products from Europe and the coast of the Mediterranean Sea. Ghadamesian provided shelter for the caravans which were protected by the nomadic Tuareg people, who lived around the oasis, and who were paid a levy by the Ghadamesian traders.

The old town of Ghadames was prosperous during the Turkish occupation and its people lent money to the Turkish government in Tripoli (according to an informant). This meant that "Ghadames enjoyed very good economic conditions from its accumulated wealth from the caravan trade" (Hassan, 1982:86). However, today Ghadames people have left agricultural activities to work in non-agricultural ones, and most of them are government employees. The gardens around the houses are now barren and a "continuation of this trend may cause a total degradation of the oasis and the reclamation of this land for agricultural production may became impossible, if the situation is not be improved soon" (Polservice, 1980:44).

5.2.4 Social life characteristics

There is a lack of historical background about the Ghadamesian people's social life before the arrival of Islam in 47 A. H.. Very limited information was recorded about the

social life during the Garamants and Roman occupations, although some Roman architecture was found near the old town. Most of the written materials on Ghadames come from foreign observers who depended almost exclusively on literary and legendary sources. This study trys to present the real factors through the living experince of local and through the author's experience in this city.

In Ghadames, as in most Libyan cities, kinship is the determining principle of social organisation. In other words, the physical environment reflects the kinship structure. Kinship ties are still strong and the family members support each other morally and economically. The social structure among the Ghadames population is based on a tight hierachy. Confederations are subdivided into tribes, tribes into clans, and often clans into subclans. However, the family is the simplest and most important unit of social structure in the old town of Ghadames. It is still highly patriarchal; its cohesion is protected and maintained by the system of matrimonial alliances and by different social measures designed to keep the families as strong as possible. The influence of the family upon the house can be clearly seen in the house design, particularly in space organisation. Social life in Ghadames oasis was most conservative, females usually being separated from public life. Every neighbourhood had its individual characteristics and every family had its own private space.

Agricultural and commercial activities were dominated by males, while women were involved in domestic activities inside the home and on the roof of their houses. Here, they made traditional items, such as floor mats and food containers from palm leaves, and traditional women's dresses. They prepared and cooked food, and met together with other women. They were also involved in upgrading or repairing dwellings. For example, they painted their own homes, whenever this was needed. In this way, women were largely confined to home and never went down to the street, except to visit the mosque or the

public bath, to fetch water.

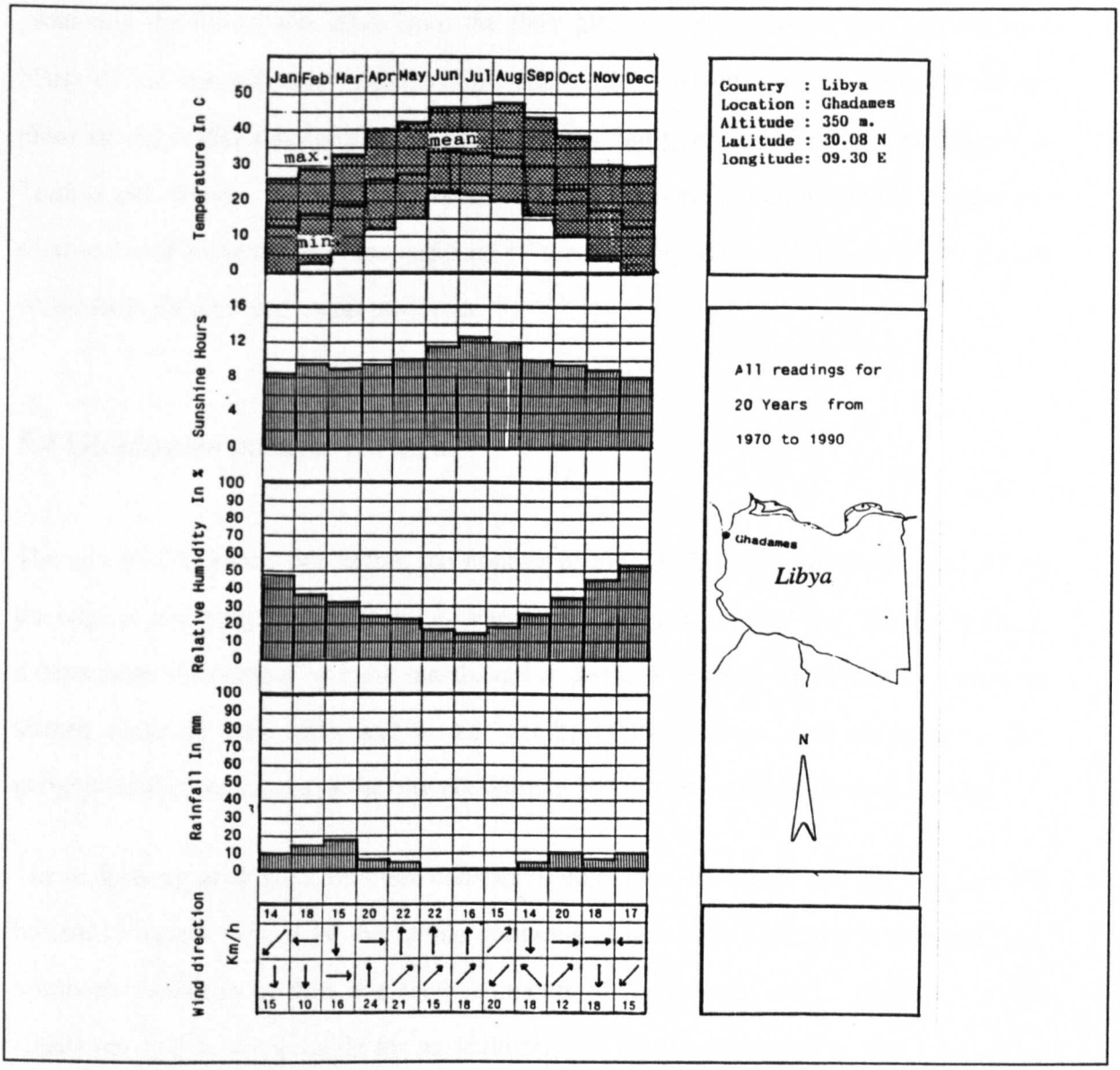
From general observations, it was found that people in Ghadames built squares around the city in a number of places for collective meetings or for functions such as social festivals and weddings. It was also found that people in Ghadames had collective and communal relations with strong social ties, and therefore helped each other in many activities. Social and cultural activities form an important part of the every day life of the people of Ghadames, creating a strong community spirit. The people attend weekly meetings in order to discuss matters of public concern (Shawesh, 1992). Preserving what remains of the old town is a matter of vital importance to the inhabitants. The oasis of Ghadames was administered by an oasis council (Omana El-Mahalat); every neighbourhood had a headman (Amean Mahala) who took care of the problems of the neighbourhood and who represented it on the oasis council.

5.3 Climatic characteristics

The location of Ghadames within the desert climate zone creates the most extreme climatic conditions of all settlements in Libya. The climate is characterised by high radiation, high air temperature, low humidity, low rainfall and many sandstorms. It is surrounded by sand hills, which provide some warmth in the winter season due to heat the from the sand, but it is cold at night. In summer, the weather is hot throughout the day and evening. The air temperature can rise to more than 47 degrees centigrade during the day. Figure 5.3 represents the climatic conditions.

The air temperature is the main climatic factor affecting comfort conditions in Ghadames peoples' dwellings. People in the new settlement cannot go out of their houses after noon

to sometimes after 6.00 pm and they cannot stay inside their houses during this period without air conditioning equipment. When the dry Ghibli and Garbi winds blow from the south and west, the problem is that of protection from excessive heat, sand and dust.



Fifgure 5.3: Climatic conditions in the oasis of Ghadames

Source: Shawesh (1992:105)

However, despite the difficult climatic conditions of Ghadames, people in the old town took note of nature before building their shelters; as a result, they solved their climatic problems by selecting an appropriate site and building the settlement as one covered mass. "Both houses and streets are admirably adapted for the climatic conditions, protecting the inhabitants alike from the fiery glare of the summer's sun, and the keen blasts of the winter's cold" (Richardson, 1848: 128). Lessons can be learned from the plans of the traditional settlements of Ghadames and many other desert settlements in Tunisia and Algeria. All these settlements demonstrate their suitability for the climate and socio-cultural requirements, the opposite of the contemporary settlements where people suffer from climate and social problems.

5.4 Ghadames natural features

The city of Ghadames lies within the borders of the Al-Hamadah Al-Hamra plateau, on the edge of a slightly elevated terrace overlooking the great oriental Erg. The oasis lies in a depression surrounded by a salt marsh, and is shielded on the western side by a crescent shaped range of sand hills, and to the east by rocky outcrops covered by sand. The geographical co-ordinates of the city are latitude 30 08 North and longitude 9 30 East.

The underlying geological structure consists of dolomites, limestone and gypsum forming horizontal layers typical of the whole geomorphologic unit. The area is covered with weathered bedrocks or dust and sand sediments of fluviaeolian origin. However, as the Ghadames soil is not suitable for agricultural use, the Ghadamesian people bring good soil from other places. The local stone is very good as a building material, with the result that all the old town buildings were built in local limestone and gypsum.

5.4.1 Water resources

The Ghadames oasis owes its existence to the artesian spring called Eyn-El-Faras (horse's spring) and dates back about 4,000 years (Ombark, 1989). Since ancient times it has provided water for the irrigation of agricultural lands as well as necessary domestic uses. The scarcity of water in the Libyan desert encouraged Ghadamesian people to think seriously about how they could benefit from their spring. The spring water running underneath the town is controlled by men working 24 hours a day, distributing the water to all gardens and quarters of the city by means of Qadoos; qadoos is a saucepan with a tiny hole in the middle dripping water in a similar way to an hour-glass. A man sitting in a recess or niche, scoops the water into the qadoos and hangs it on a peg letting the water drip out. It usually taken between 20 minuties to half an hour for all the water to drip out. When the water has all gone from the saucepan, the controller ties a palm frond and repeats the action of scooping water and knotting palm fronts for a limited period in each quarter of the city. Ghadamesian people control the distribution of water to each part of the city in this way and can also find out the exact time by counting the number of knots on the peg where the saucepan in hung (Shiaboub, 1979).

This source of water flowed until 1971, when, because of the decreasing water level, the Ghadames municipal authority attempted to increase the flow by cleaning out and enclosing the pool with a reinforced concrete wall. The result of this work was negative, and the spring dried up. An artesian well over 1,000 metres deep was then dug near the old spring, and since then has provided the town and oasis agriculture with water. However, the Ghadamesian people are very concerned about the risk of losing their historical spring as throughout the ages it has been connected with the history of the oasis. For more information about the way Ghadamesian people controlled the water see Lars Eldblon (1960) who did reserach about Ghadames land and water ownership.

5.4.2 Vegetation

The area of the Ghadames oasis is nearly 82 hectares and consists of walled-in fields and gardens. About 36,000 palm trees predominate in the oasis. Fig and eucalyptus trees may also be found; grains and vegetables are cultivated on irrigated fields, together with citrus and pomegranate trees. The agricultural lands are situated at a lower level than the surrounding areas and were previously irrigated by water supplied exclusively by the spring, via five variously-directed channels. The old town was originally fortified and protected from the drifting sand as well as from the high air temperature of the surrounding desert.

5.5 Existing land use

The area of planned urban development, both traditional and contemporary, covered about 310.3 hectares. The following urban components may be distinguished in the physical structure of the present city: The total area of the oasis is about 82 hectares. The oldest part of the city, in the south west of the oasis, covers 11.6 hectares. The contemporary settlement, where the extensive residential area, is located to the south of the oasis and covers about 288 hectares.

The public facilities are located in the center of the old town; they include the administrative, commercial, educational, religious, health and cultural buildings, the old market, airlines office and some shops (table 5.1 presents the information about the existing land use).

Table 5.1: Land use

Land use type	Area in hectares	Per cent
Residential	105.9	35.2
Education	19.1	5.9
Health and social welfare	19.6	5.6
Religion and culture	29.2	8.8
Commerce and Business	16.7	5.4
Sports and Recreation	6.5	2.4
Administration and public facilies	6.4	2.1
Industry	20.3	9.4
Agricultural services	1.0	0.5
Transport and communication	82.2	23.3
Public utilities	3.4	1.4
Total	310.3	100

Source: Polservice (1980:16)

5.6 The characteristics of the Ghadames traditional settlement

The old Ghadames was organised and governed according to the socio-cultural and climatic needs, and this clearly shows that an overall social unity was established in this town. Despite the fact that the town dates back more than 2,000 years, the townscape features proved that the spatial pattern of the old town of Ghadames related directly to the traditional social organisation. Piccioli, (1935:209) stated that: "In few places on earth, I believe, is one dominted, as at Ghadames, by that singular charm which is exercised by traces of a vanished way of life, of a world that has lasted from immemorial times. Everything here is as it has been for centuries". The requirements of socio-cultural values and climate played a great role in forming the space in the town. Consequently the separation of spaces into a hierarchy from totally private to completely public can clearly be seen.

The traditional settlement of Ghadames is located in the south-west of the oasis and forms one large agglomeration of houses (figure 5.4). It consists of about 2,120 dwelling units, markets, mosques and other public spaces. Ghadamesian house design represents a clear

expression of the socio-cultural values held by Libyan society and provides a clear illustrating the way in which the orignal architects responded to the climatic and users' living requirements in the neighbourhood, settlement and house in particular.

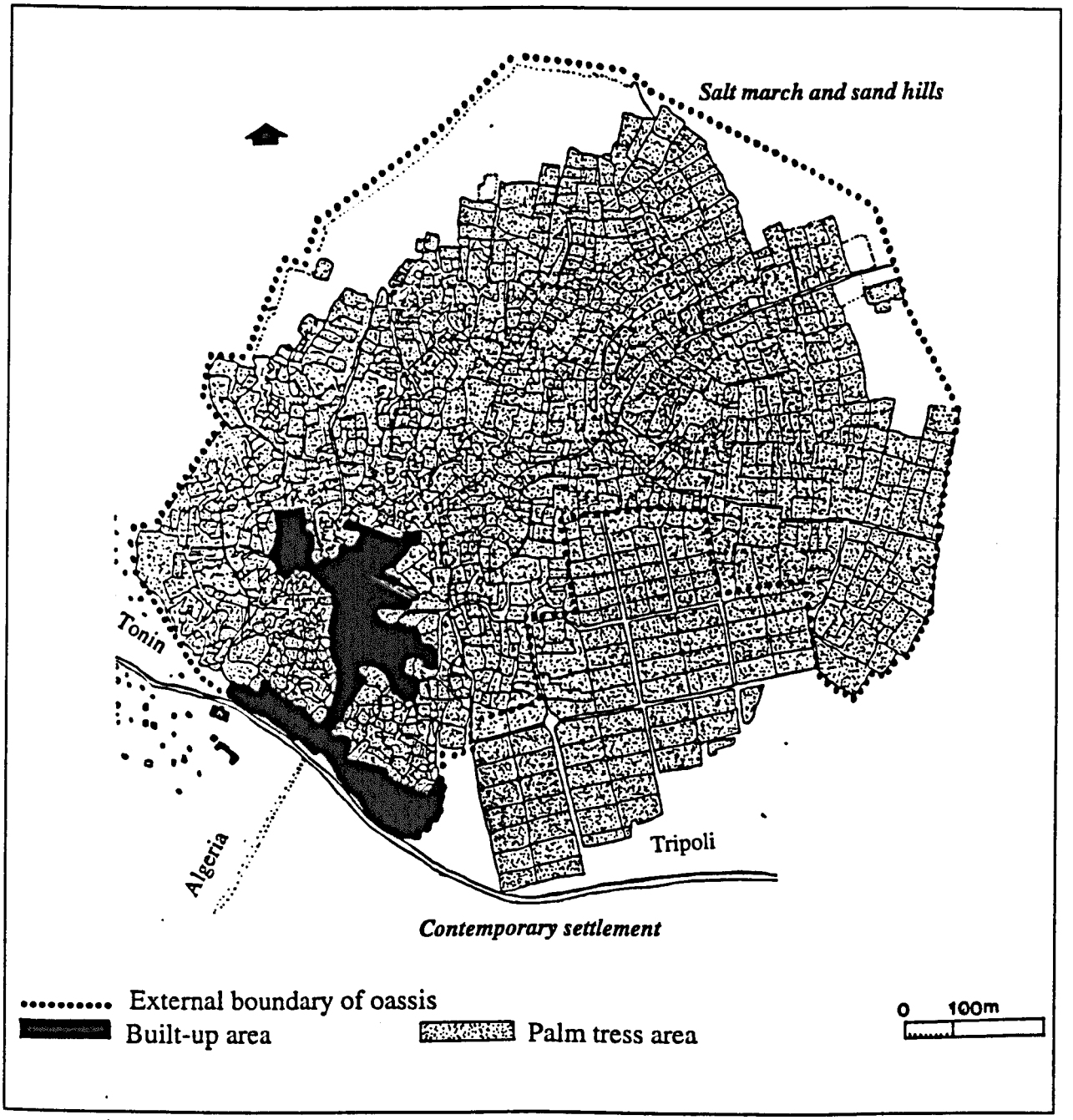


Figure 5.4: Location of the traditional settlement

Source: Lars Eldblon (1968:5)

The division of the community into groups according to descent has resulted in the development of seven neighbourhoods displaying individual characteristics: Tusku, Djarrasan, Mazigh, Tharefra, Giorsan, Tangzin, and Auld Blel (figure 5.5). Each neighbourhood has a centrally located communal meeting square and a major mosque where male communal gatherings take place. This was and is the very centre of each settlement. Water distribution was controlled from this point, incoming mail was delivered from here and, in the old days, the square was used as a market place where caravans exchanged their goods. About 23 mosques were built throughout the settlemen, almost all of which have maintained their historic authenticity. The six neighbourhoods located inside the oasis are relatively homogeneous in character. The only modern structures are found adjacent to the mosques where new washing and toilet facilities have been constructed. The seventh neighbourhood, Aulad Blel, to the south-west of the oasis, was built during the second part of the last century by new arrivals from neighbouring villages. The housing in Aulad Blel is of a different design but displays the same high architectural quality as found in the other six neighbourhoods.

The striking impression of the townscape is produced by the colour ochre, which looks like the earth of the alleys, the white washed mud walls and the covered passage ways. The stepped finials at all house corners and the palm trunk doors are also characteristic details and only the occasional oil painted carpentry work gives a tint of green and blue to the natural colour scheme. The traditional settlement looks as if it is built underground. The houses are compactly built with winding lanes and alleys passing underneath; thus the alleys in some places became dark tunnels creating a hierarchy of communcation lines. The main streets are two to three metres wide and are lit through regular sky-lights. Dead-end alleys of lesser width branch out in various directions giving access to groups of houses. As no natural light is present in these alleys, access is discouraged for outsiders who may intrude upon the private sphere of the family. This unique townscape has been

created with a view to avoiding the direct sunlight during summer and for protection against sand storms. Furthermore the dense fabric of buildings creates a time-lag in the build up of heat, keeping the interior of the town and of individual houses more comfortable during summer and winter seasons.

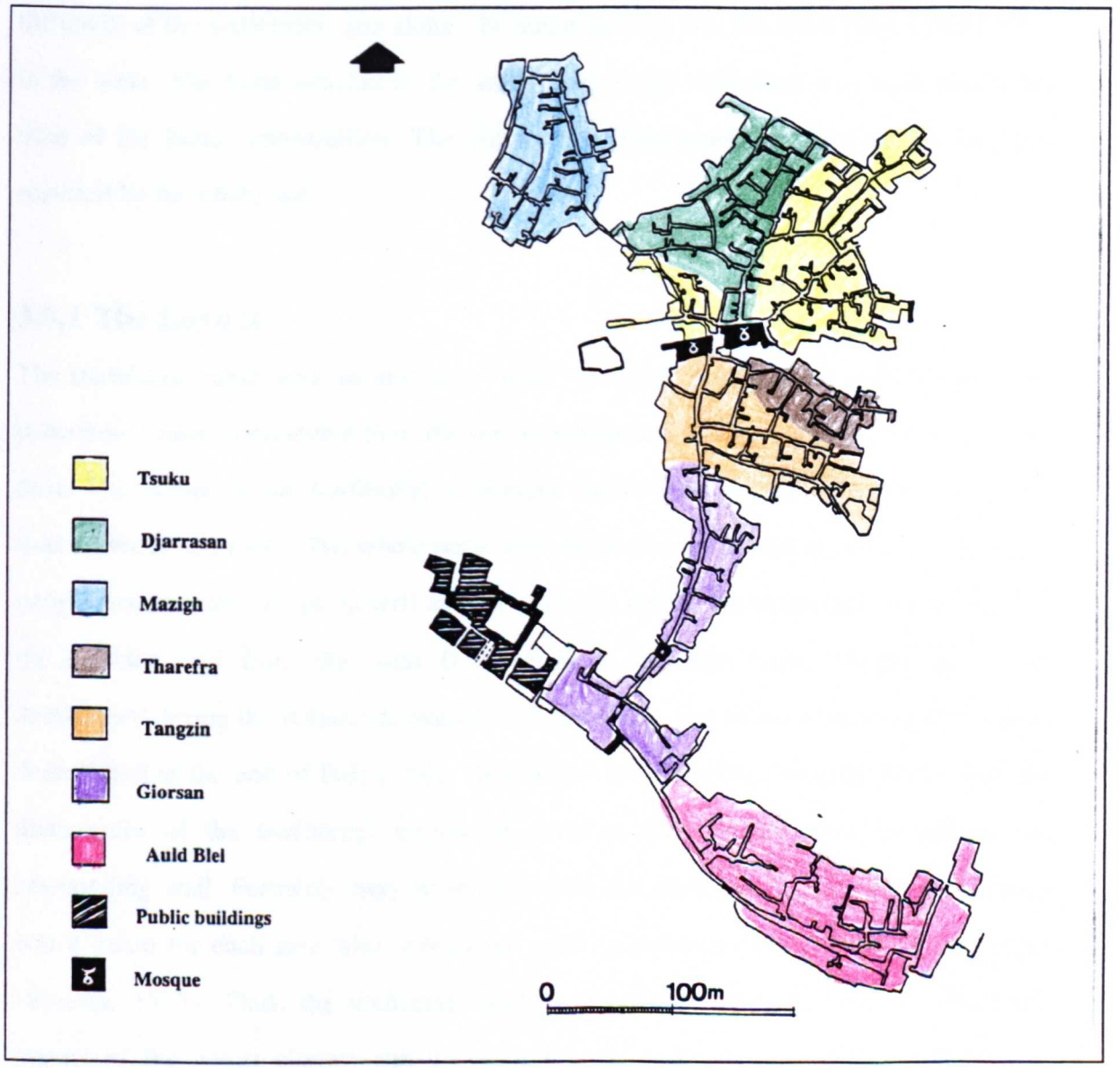


Figure 5.5: The seven neighbourhoods of the traditional settlement of Ghadames

Source: Lars Eldblon (1968:7)

The market place is a public area. Each neighbourhood is directly connected to the market place by semi-public streets. The markets were remarkably few considering the importance of commerce to Ghadames. However, in the past the local consumer-market may largely have depended on subsistence farming and the caravan trade did not require local produce. The Souk (market) was situated in two places; along the Djarrasan street to the south of the settlement, and along the street leading into the town from Eyn El-Faras in the west. The Souk situated to the south-west of the settlement was built during the time of the Italian colonisation. The old town of Ghadames provided all the facilities required by its inhabitants.

5.6.1 The Layout

The traditional settlement, located in a "wadi" or valley protected by a thick growth of palm trees, remains protected from the sun by foliage and shadow, and also from sand and dust. The layout of the traditional settlement shows mud houses built close together, sharing walls and roofs. The whole oasis was surrounded by a wall in order to protect its people from enemy attack as well as to restrain the desert. Unfortunately, a large part of the exterior wall from the Auld Belel street to the Bab Nader (Nader gate) was demolished during the Italian occupation. The remaining part of the exterior wall was also demolished at the end of Italian rule. Only a few short stretches remain. In the past the main gates of the traditional settlement, such as Bab Jarrsan were located in the surrounding wall. Formerly there were more than ten gates within the settlement. There was a guard for each gate who opened the gates in the daytime and shut them at night (Yousha, 1973). Thus, the traditional settlement houses remained protected from the impact of the desert climate and provided privacy and security for their inhabitants. Piccoli, (1935: 215-217) stated that Ghadames stands like a fortress against the sun and the desert. "It seems rather like a giant coral reef. One thinks of it as the slowly extended

crust of collective life that has gone on through generations of always similar individuals, as a natural product that has arisen spontaneously through thousands of years".

The old town of Ghadames is considered to be a representative example of an Arab Islamic city, comprising the home, mosque, wall and "Souk" (market). It shares many characteristics of Islamic cities, such as compact building arrangement, harmony and unity as well as every neighbourhood planned around a central mosque. Generally the old town layout is characterised by a compact residential area, with narrow winding alleyways, a hierarchy of space and social solidarity which is based on shared religious identity.

5.6.2 Spatial organisation of the traditional Ghadamesian house

The traditional Ghadames house was the outcome of several factors: socio-cultural and climatic requirements all contributing to its design. The main considerations were the necessity for privacy, security and proximity to water. However, more important are the social divisions which were reflected in physical terms by the division of the house into two distinct sections: a strictly private space ensuring that the family life was completely protected from the outside world, where no glimpse could be caught from the street, even when the house entrance remained open, and a semi-private space where male guests could be entertained. Houses were planned in such a way that none of them overlooked another, neither the walls, or any private space can be seen by a neighbour.

Interestingly, houses in the old town of Ghadames have uniform characteristics and patterns, the differences being the quality of decoration, the size, and the space arangmement which reflect the social life and wealth of the owners. They lack any of the central open courtyards, which is a distinct feature of most houses in the other parts of the country and other desert oases in Tunisia and Algeria. It seems that the people of

Ghadames may have paid more attention to the house form and its articulation as an important mechanism responding to climate and social conditions (figure 5.6 shows Ghadamesian house plan).

5.6.2.1 The size of the house

Ghadames houses are similar to a large extent in size, space organisation and distribution of elements. Sometimes no one can differentiate between these houses, except in the distribution of ornaments which sometimes are similar and have the same craftsmanlike character. If there are differences, they are very small and do not affect the form of the house. These differences may be shown in an increase in the number of bedrooms, or in the area of the living room. The plot area of the Ghadames house may range between 25 to 50 square meters and the house area may range between 70 to 80 square meters. There are some standard areas for the inside elements of the Ghadames houses: the area of the bedrooms is between 5 to 12 square meters, the area of the living room is between 10 to 16 square meters, the area of the bathroom is from 4 to 6 square meters, and the area of the store rooms 20 square meters (figure 5.6 represent Ghadamesian house plan).

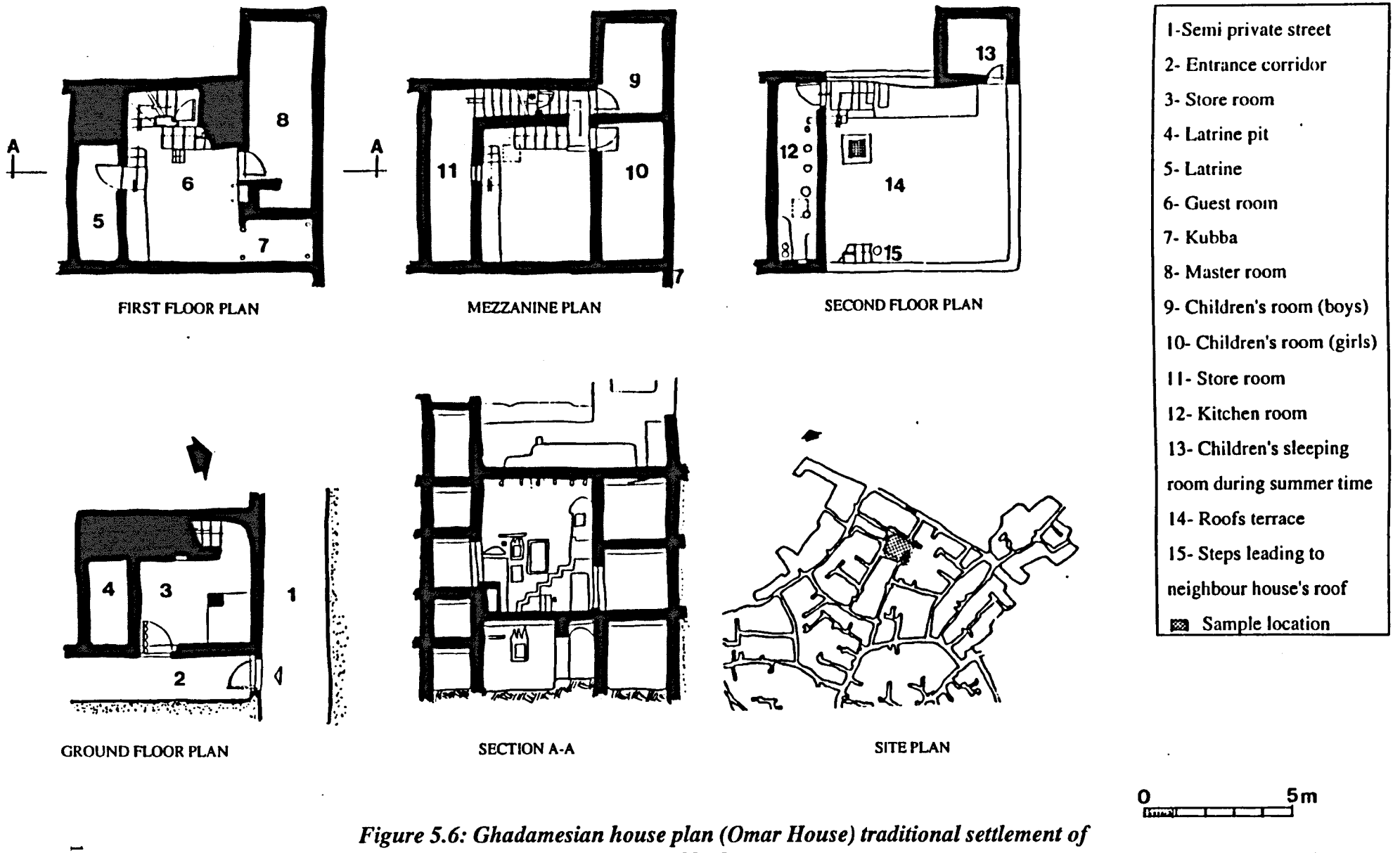


Figure 5.6: Ghadamesian house plan (Omar House) traditional settlement of Ghadames

5.6.2.2 Plan arrangement of the Ghadames Traditional House

There is only a single entrance door to the Ghadamesian house, made of palm tree trunk. This entrance usually opens directly on to the covered passage-way and is made from palm trunks, which are about 1.40 m wide. On the ground floor there is access to a store room for agricultural tools; it measures 4.75 m by 3.50 m and is quite dark. A flight of stairs leads to the upper floors. Additionally there is a room with a pit for the latrine. The first floor has a larger area because of its projection over the street level, and a big living room with a double floor to ceiling height known as the "middle home" (wast El-Houash). This central space is used as the living area, and is the most important room of the house. It also functions as a guest room in which the owner receives his guests, and it is here that the decoration is concentrated (figure 5.7).

The most interesting room is on the same level, located in one side of the middle room (Guest room), and is called "**ELKUBBA**". This small space called Elkubba is reserved for two special occasions, the first is when a woman marries and the second is when her husband dies. The space is used for one night only, for the first night of the marriage, when it is richly and traditionally furnished and decorated. When the husband dies, the widow spends the night there. Her son, if living in the same house, could bring his newly married wife to spend the first night in this place (figure 5.8). The only light comes from an aperture in the ceiling. Additional rooms have access directly from the living room, either at floor level or at mezzanine level, in the latter case with a flight of steps inside the room. Finally the top floor is reached by a winding staircase, this upper floor has a cluster of kitchen cubes, courtyards and terraces which are reserved for the women so that they are able to confine most of their activities, including cooking, washing, following traditional crafts such as making mats and carpet, to these places and it serves as their meeting place to visit their neighbours in any part of the town. This is possible because all

the settlement houses are connected to each other by terraces above the lower streets. These allow the women considerable freedom of movement and communication which parallels the men's movement and communication in the lower streets, and gives opportunities to meet each other in complete privacy and security without contravening the traditional segregation of the sexes. The terraces are surrounded by walls about two metres high to ensure privacy.

The bulk of houses are of the same basic design except only different slightly in size and decoration. The actual age is very difficult to assess, due to the building form having evolved over a long period of time. Ghadames does not seem to have been influenced by colonial architectural style, whether Phoenician, Garamants, Greek, Roman or Italian. It is unique amongst Islamic style and design. It is argued below that the plan and architecture of the city is part of the original ancient Arab tradition.

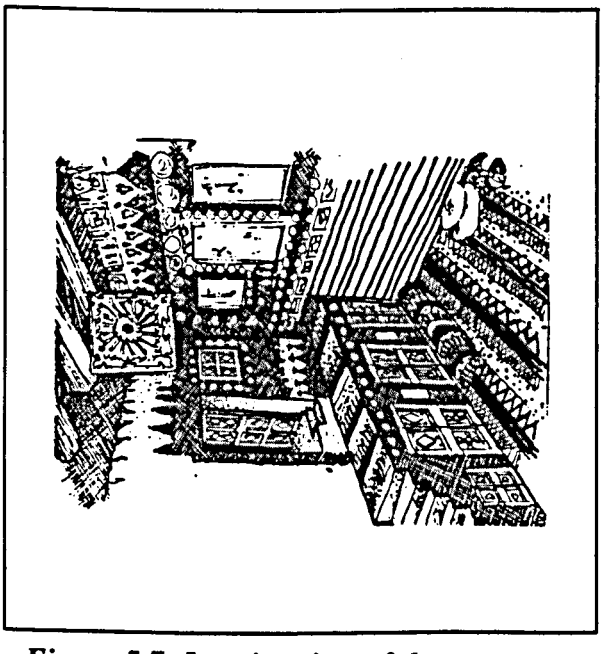
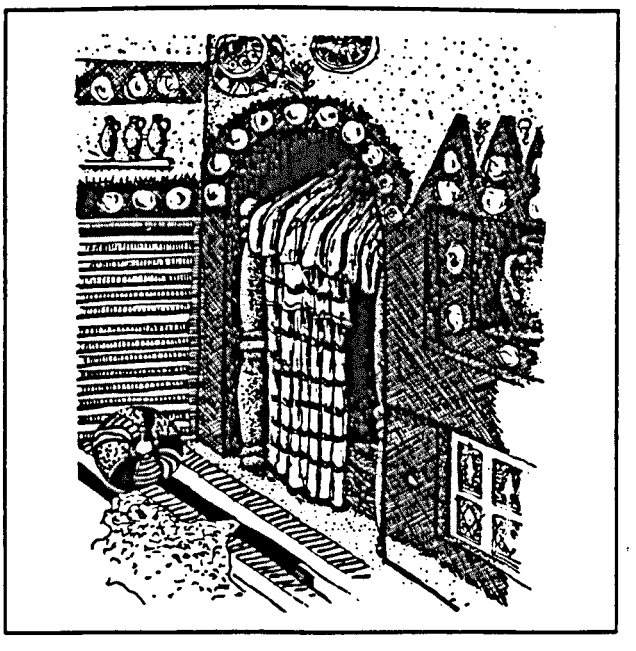


Figure 5.7: Interior view of the guest room

Source: Ahmed (1985:48)



Figre 5.8: Elkubba view

Source: Ahmed (1985: 48)

Interesting aspects of the traditional settlement of Ghadames are the building form and its location in the oasis. The housing form not only provides protection from the climatic conditions, but also fits well with the socio-cultural pattern. The buildings form one integrated complex as they are horizontally and vertically toothed into each other. The whole special arrangement is an unbeatable adaptation to a hostile desert climate which modern technical means can hardly achieve so ingeniously.

5.6.2.3 Ghadamesain traditional house decoration

The Ghadamesian traditional house has unique decorative characteristics. It is outstanding as one of the best desert habitations developed by local builders with a richness of decoration (Hassan, 1982). Ghadamesian people are extremely concerned with their home decoration; they use many expressive materials, ranging from locally-made paint to mirrors, brass, tapestries, pictures of saints, objects of local handicraft and souvenirs inherited from the caravan trade. All these elements are arranged on the walls mainly by the women and are concentrated within the central room (living room).

The most adapted form of decoration in a Ghadamesian traditional house is the wall paint; the women are proficient in making this colour; the interior walls are all plastered with gypsum and whitewashed and decorated with bright red motifs. Red is the preferred colour inside the rooms and, together with mirrors and various utensils hanging on the walls, combines to make a delightful interior. The external walls have a appearance characterised by the brownish and pale yellow colours of the sundried clay bricks. Conical patterning on the top of the walls and the stepped finials at the corners are whitewashed, providing a characteristic feature to the external appearance of the house. Besides the spectacular visual effect, this measure also improves the capacity of the walls to resist weathering and general deterioration. Interior doorways are framed and decorated by the women who choose the colours and decorate the living room walls with stucco

moulding.

A particular conical pattern on the top of the external walls was an ancient form of protection against evil spirits in the days before Islam became the religion of the people. The design can also be seen on the city walls showing that the people wished to protect their city. This pattern was also brought into the interior walls when the dwellers were decorating their home, to protect their family members.

5.6.3 Building methods and materials

The main influence of socio-cultural values on the design of the traditional Ghadames dwelling can be seen in the fact that it is constructed of local building materials using traditional structural methods. All buildings are constructed entirely from local materials, mainly lime stone or sun-dried clay brick for walls. Gypsum or lime and clay are used for mortar, and bisected and smoothed trunks of palm trees for ceilings and roofs. The buildings are integrated into one complex structure making it hard to distinguish the individual houses. The Ghadamesian house structural system has resulted from the types and strength of building materials found locally such as lime and gypsum which are produced in the village of Tonin three kilometres west of Ghadames.

In the horizontal floors, divisions are constructed by bisected and smoothed trunks of palm trees; the wood should be kept to dry for one year before use and treated twice with a wood preservative made by a solution of dates, salt and lime. About thirty different kinds of palm trees provide materials of varying properties: gypsum and lime for plaster were produced in the vicinity of Ghadames, but only a few people now practise the old craft of burning these materials. Craftsmen preferred to use "Tamudi" palm tree in floors because they provided more flexibility and resistance to deflection. Ribs of palm leaves

are left in water for three months before plaiting to provide support for the upper floor slab. The slab consists of light stones and mud with a floor screed of gypsum (figure 5.9).

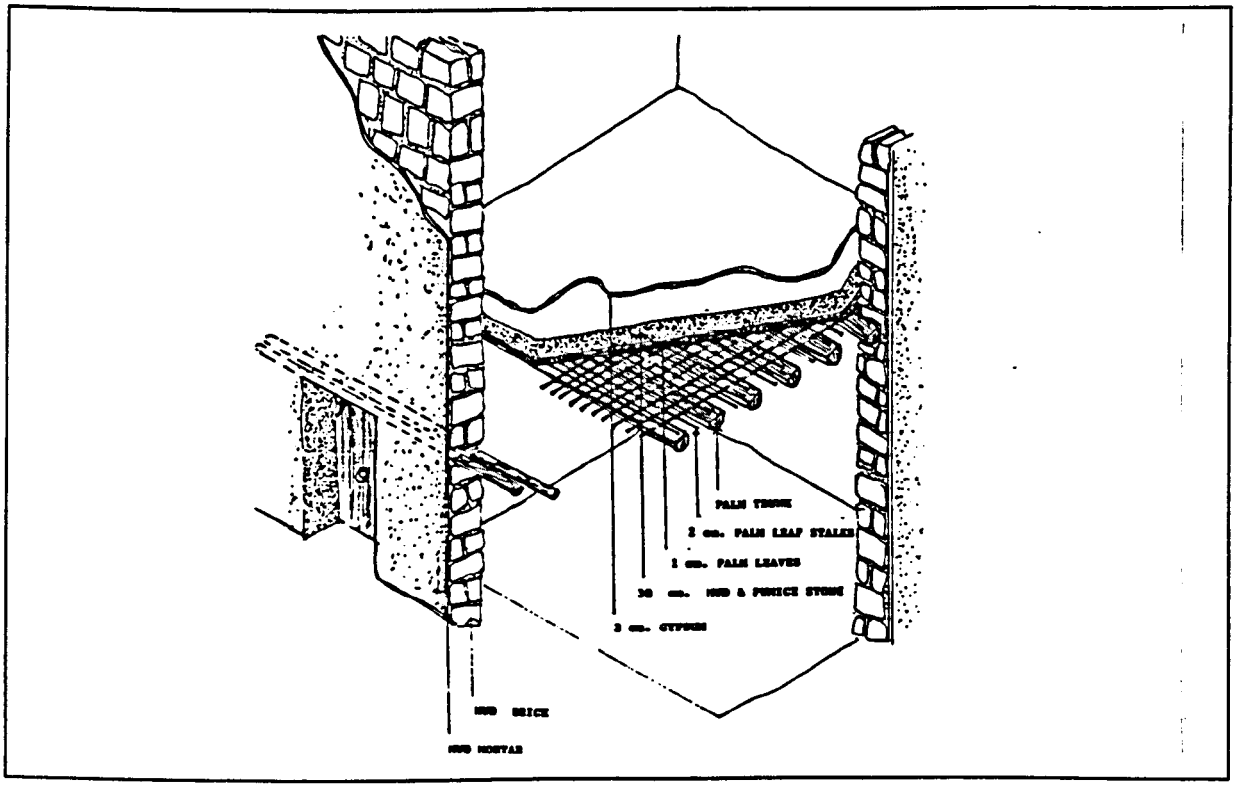


Figure 5.9: Type of building materials used in Ghadames traditional houses

Source: Shawesh (1992: 138)

The latrine is situated on the first floor next to the main staircase. It empties down into a pit located in a separate room in the ground floor. The latrine pit is constructed of stone and measures about 2 metres by 2 meters. When used regularly by one family it was necessary to empty it only once a year. After each visit ashes are thrown into the latrine pit to prevent any smell escaping. The fermented contents of the pit gradually became dry and friable, providing a useful fertilizer for the fields.

The building materials available for building the traditional settlement houses are:

1) Mud
2) Hard lime stone
3) Pumice stone
4) Palm trees; trunk, leaf stalks and leaves
5) Gypsum
6) Chopped straw

With these six very simple building materials, Ghadamesians used to construct their houses in the middle of the Sahara Desert. Many factors determine the selection of specific types of materials, the economic structure of the society, experience with certain types of materials and methods of construction, the level of technology, the urge to adapt certain dwelling forms and climatic conditions.

All loadbearing walls are constructed of sundried claybrick on a foundation constructed of hard lime stone in a mud mortar. The foundation trench does not exceed one meter in depth. The thickness of the walls diminishes from the bottom of the house to the top, corresponding to the size of the bricks, which measure 60 by 40 by 15 centimeters at the ground floor, 50 by 40 by 15 at first floor level and 40 by 40 by 15 at the second floor. The bricks are made from mud mixed with straw. The raw materials should be left under moist conditions for at least one year before being used to make bricks.

The main materials used in the floors and roofs are the palm trunks used as beams, either as whole pieces or cut into lengths; they are spaced 50 to 70 centimeters apart from each other. On top of these beams the palm leaf stalks are placed horizontally. On top of these stalks palm leaves are laid in the opposite direction. Mud mixed with small pumice stones is then laid on top of the structure. The last stage is a layer of gypsum to act as a floor or roof finish.

The stairs are usually constructed with light pumice stone and gypsum mortar. First, an arched structure is constructed carrying the steps of the stairs, then these steps are finished in gypsum. The lintels above the doors and windows are constructed by two methods: Firstly the palm trunk lintel which works like a beam to distribute the load in two directions and is always used in the main entrance, other doors and windows. In the second method all the arches are built with pumice stones, using gypsum as mortar. Traditional houses have been built by the self-help process and usually take about one year to complete. Usually 20,000 mud bricks, 800 meters of palm trunk, 1,500 palm branches, 20,000 kg gypsum and 2,000 kg lime are needed. As in many desert habitats, openings are very limited and small Gadames houses contain about 10 doors and between 3-5 windows (Shawesh, 1992).

Finally, the Ghadames traditional dwelling, successfully preserves its ancient history in its artifacts, decorations and architecture. "The traditional Ghadames house could be described as a museum representing the family and its preceding generations" (Hassan, 1982:117). Socio-cultural and environmental forces affected both the settlement and its architectural contents. The house reflects an ingenious method of shelter design using limited resources and space to meet physical, functional and socio-cultural needs and to modify the harsh climatic conditions for the benefit of humans.

5.6.4 Charcteristics of Streets, Squares and Passages

The street pattern has responded to the socio-cultural values of the Ghadamesian people and climatic conditions. In the old settlement it is designed for pedestrian and animal circulation. The narrow winding alleyways are in harmony with each other. The width of the streets depends on their function and location. The main thoroughfares are about two

meters wide and are bordered by stone benches along the walls in order to enable the male residents to sit and chat during the day time. Most of these winding streets are covered or shaded (figure 5.10 A, B and C). Some streets are curved and angular, some culminate in dead-ends or open into squares (public spaces). A visitor may very easily loses his sense of direction. The streets change shape and width and direction, depending on the number of households they serve as well as the need to give protection from the hot wind and provide a feeling of safety. The street system results from the socio-cultural values of the users who were deeply concerned with privacy, security and religion and a clear separation of public from private life by a hierarchial sequence of progressively more private spaces (figure 5.10).

The need for public meeting places was met by the provision of well-planned squares. The squares were usually covered to give protection from the sun and shelter to those who gathered there. Parties and weddings took place in them. In the adjoining streets and alleys men carried out their daily business, where the shadows made by the buildings on either side reduced the sun glare and gave them relief from the heat and provided protected space for social activities. At night, the streets were lit by oil lamps making the passers by feel safe and comfortable. The entrance of each house was also lit by these lamps and they shed their radiance upon the adjoining streets and alleys. It was the women's duty to extinguish the light from the lamps, plunging the town into complete darkness and making it hard for the enemy to attack.

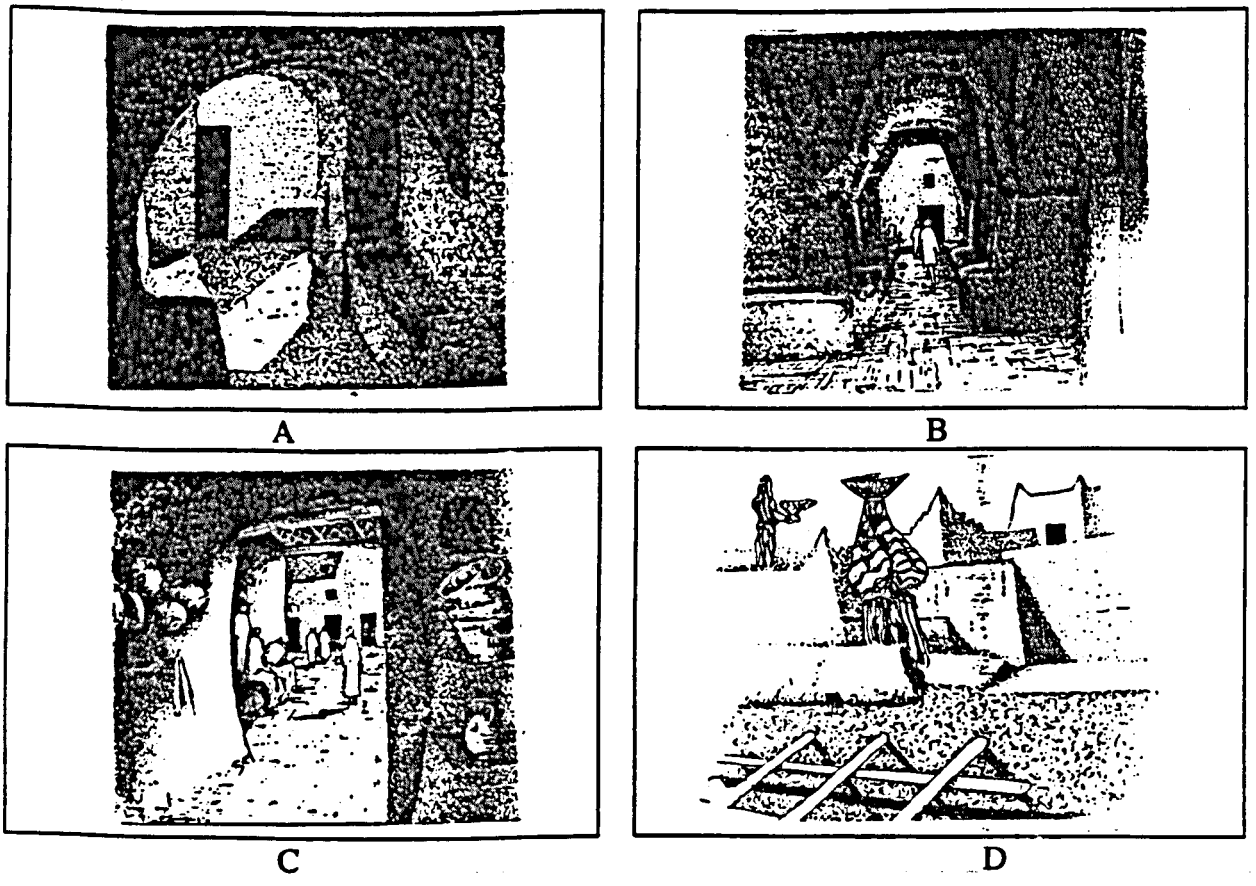


Figure 5.10: Types of streets in the traditional settlement of Ghadames

Source: Ahmed (1985: 38 and 41)

The squares in old Ghadames are of particular interest. They are divided into three types; space which enables children to play with each other and talk; space which allows middle-aged people to meet and discuss matters of interest, without being interrupted by the children, and lastly to give the older people a place where they can have peace and quietness in order to think about and solve the problems of society. Such an arrangement creates a feeling of respect for the various family groups. Children learn to respect their elders and older people have concern for the children and can provide a good example. This classification reflects the hierarchical aspect of the structure of the family system.

An interesting feature of the traditional settlement of Ghadames in terms of soci-cultural needs, is that the upper passages linking the houses were used by the women, instead of using the streets and alleys. This is one of the reasons why a division was created in the relationship between men and women. Kitchens were on the roof tops, which were surrounded by walls 2 meters in high. This made it easier for the women to visit one another, and to call to one another across the roof tops (figur 10 D). To provide privacy, security, and protection from sand and dust, plants, bushes, and shrubs were used to surround the houses, where there was space, and outside the buildings, creating a welcome oasis of greenness.

Lighting and ventilation shafts leading down to the covered streets and lanes at ground floor provide natural ventilation to all rooms and, indirectly, light comes from the wells. There is also a small window of not more than 50 centimetres square located in the roof (figure 5.11). The whole spatial arrangement is an adaptation to the conditions of a hostile desert climatic.

Figure 5.11: Natural lighting and ventilation in the traditional house

Source: Fieldwork, 1995

5.7 Development of Ghadames City

The economic growth that resulted from oil production affected the socio-physical characteristics of Ghadames city like the other cities in Libya. The city witnessed a massive modern building boom in both public and private sectors, especially in terms of housing, which transformed Ghadames from a small town to a large city. The development plans of the city illustrate the rapid increase in housing shortage from one year to another and reflect the development the city is undergoing. In 1969 the first plan for Ghadames was drawn up by an Architectural Planning Partnership in Copenhagen. At that time, the original town was still limited to inside the oasis. It was still completely inhabited and the number of houses totalled 2,120 of which only 1,575 were in use, as is presented in table 5.2. However, the master plan that was produced in 1969 made no recommendation for the preservation of the traditional settlement and measures are urgently required to preserve and protect this unique architectural heritage.

The existing public facilities in the oasis consist of a municipality office building, a 22-bed hospital, two elementary schools, a primary school, a custom house, an immigration office and an air strip. The only buildings outside the confines of the old town are the former Turkish fortress (now used as a museum) and a few scattered houses used temporarily by the Tuareg people. No Ghadamesian people live outside the oasis.

The above mentioned master plan assumed that the Ghadames population would grow to 6,000 inhabitants by the year 1988. In order to protect the oasis, urban development was planned outside to the south. The new development was carried out in accordance with the main provision of the plan. However, many deviations may be observed, caused mainly by a higher rate of population growth, and the depopulation of the historical part. Most of the new settlement was built by the Government and the rest by private housing

loans. It led to a general improvement of housing standards through the use of Western building technology. New employment possibilities were also created by the new Ghadames Municipality and as a result, the agricultural sector became less important in the local economy.

Table 5.2: Vacant housing in the traditional settlement of Ghadames

Neighbourhood	Houses in use	Vacant
Tusku	340	60
Mazigh	300	100
Djarrasan	200	50
Tharefra	255	45
Tangzin	160	70
Giorsan	300	100
Aulad Blel	20	120
Total	1575	545

Source: UNCHS (1987)

In 1978, the Secretariat of the General People's Committe for Utilities signed a contract with the Polservice-Wadeco consulting office; the main purpose of this contract was to initiate a series of planning studies for the Region of Tripoli. These studies covered the existing conditions and development trends, as well as the development possibilities up to the year 2000, comprising of the Region, five subregions and the selected urban areas in the region. Ghadames city was one of these urban areas in the subregion of Gharyan. The new development plan for Ghadames was submitted to the Government and accepted in 1981 (figure 5.12). Unfortunately, this plan lacked any specific, well-defined housing related to socio-cultural factors or climatic needs of the Ghadames society and environmental conditions. The new development proposals identify the following structural functional units:

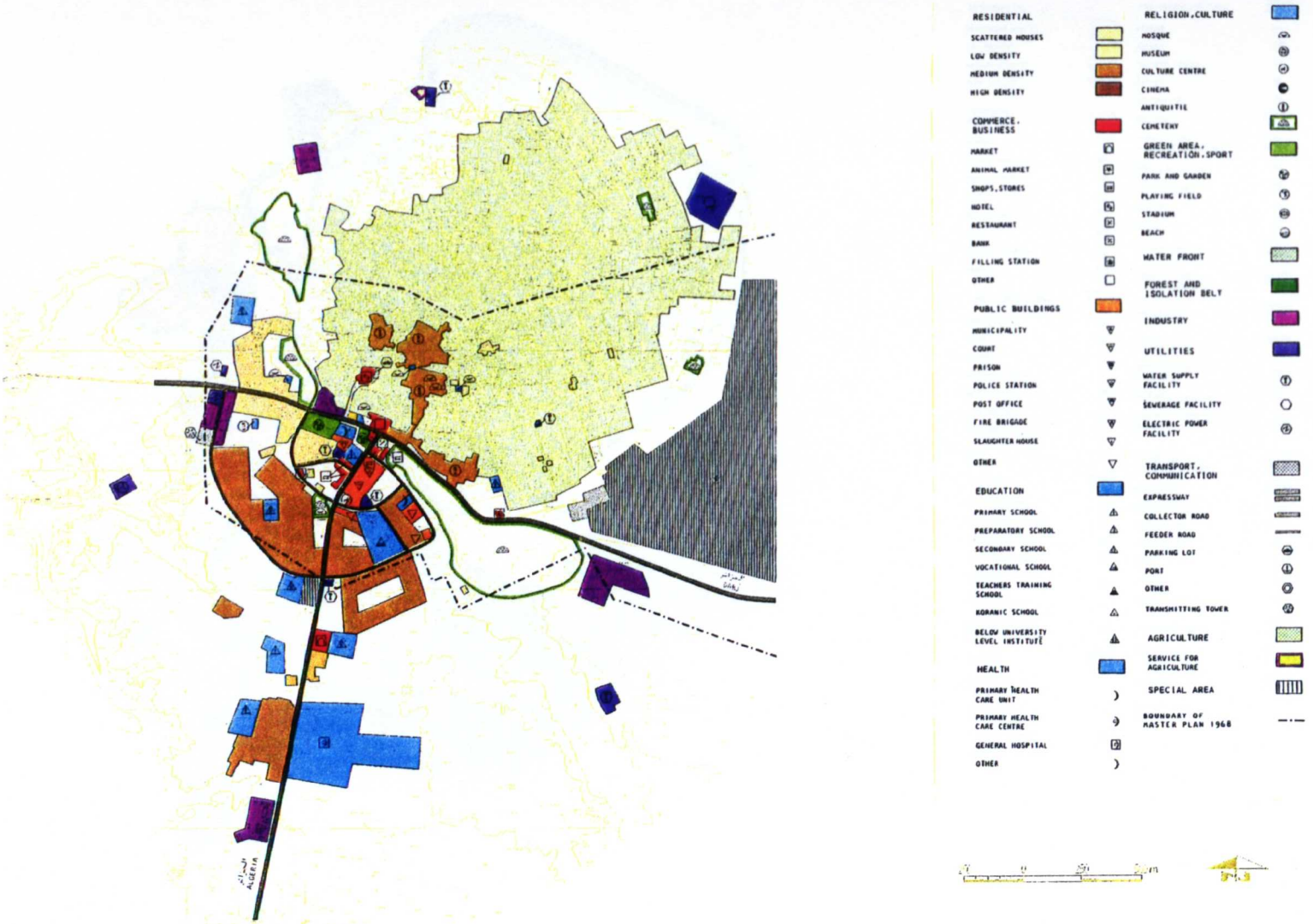


Figure 5.12: The new develoment plan, 1980 (cont'd)

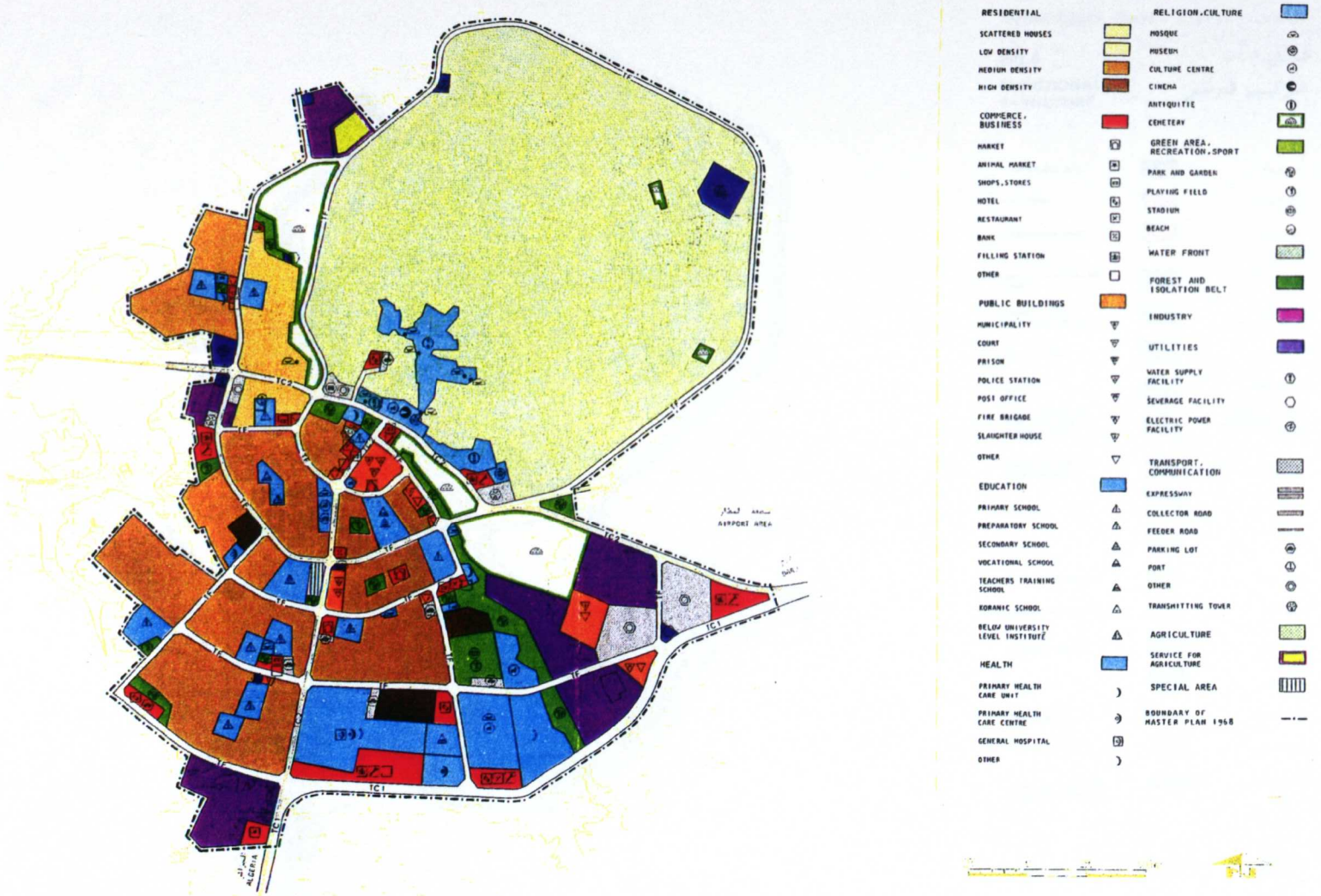


Figure 5.12: The new develoment plan, 1991 (cont'd)

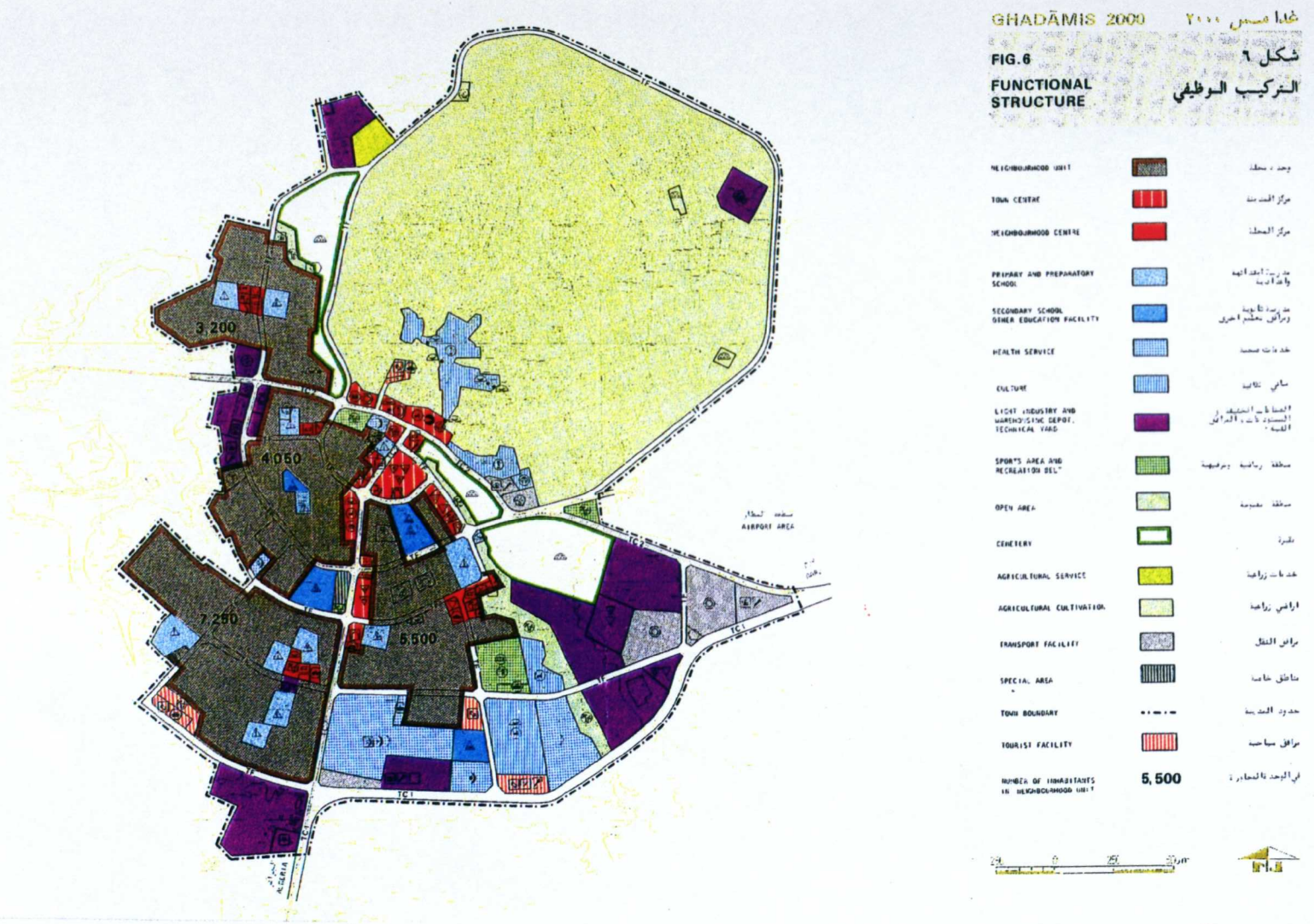


Figure 5.12: Projected city Ghadames (2000)

Source: Polservice (1981)

1) four neighbourhoods of various size, ranging from 3,200 to 7,250 inhabitants (table 5.3);

2) town centre;

3) oasis with the old town (to be designated a historic monument);

4) industrial estate including transport depots;

5) health service complex;

6) system of open spaces, comparing sports facilities, recreation areas, etc.

Table 5.3: Ghadames housing development, 1980 to 2000

Year	1980	1990	2000
number of dwelling	950	2675	3750
net residential area/ha	82.0	105.9	127.9

Source: Polservice (1981:69)

A 616 housing units project was designed at the same time by Poland's native architects Mika Ratshiva and Andrzej Zukowski (Ben Swessi, 1993). These houses were built by a Turkish company in the 1980's as the first modern housing (figure 5.13). The main purpose of these new dwellings was to meet the pressing need for housing, however, the issue of the socio-cultural values that influenced the Ghadames traditional settlement had been completely ignored in their design. This fact was emphasised by Ben Swessi "the 616 s' housing project was crude and is lacking in sensitivity to local traditions, values and climate" (Ben Swessi, 1993:16).

By 1982 the inhabitants started to move from the old town to the new town. The houses' shape, building materials, size, infrastructure and shortage of housing made Ghadamesian people ready to move from their traditional homes to the contemporary dwellings. They thought the type of dwelling gave them a better quality of life and a healthier, brighter

environment. However, this housing was randomly designed without any consideration for the people's socio-cultural needs. Unfortunately this type of housing design still continued in the south and west of the oasis due to the rapid population growth of Ghadames, as well as the immigration of people from surrounding villages, which, in turn, caused an increase in the housing shortage. The following section deals with characteristics of this type of housing; layout, space organisation, building materials, construction methods and street patterns.

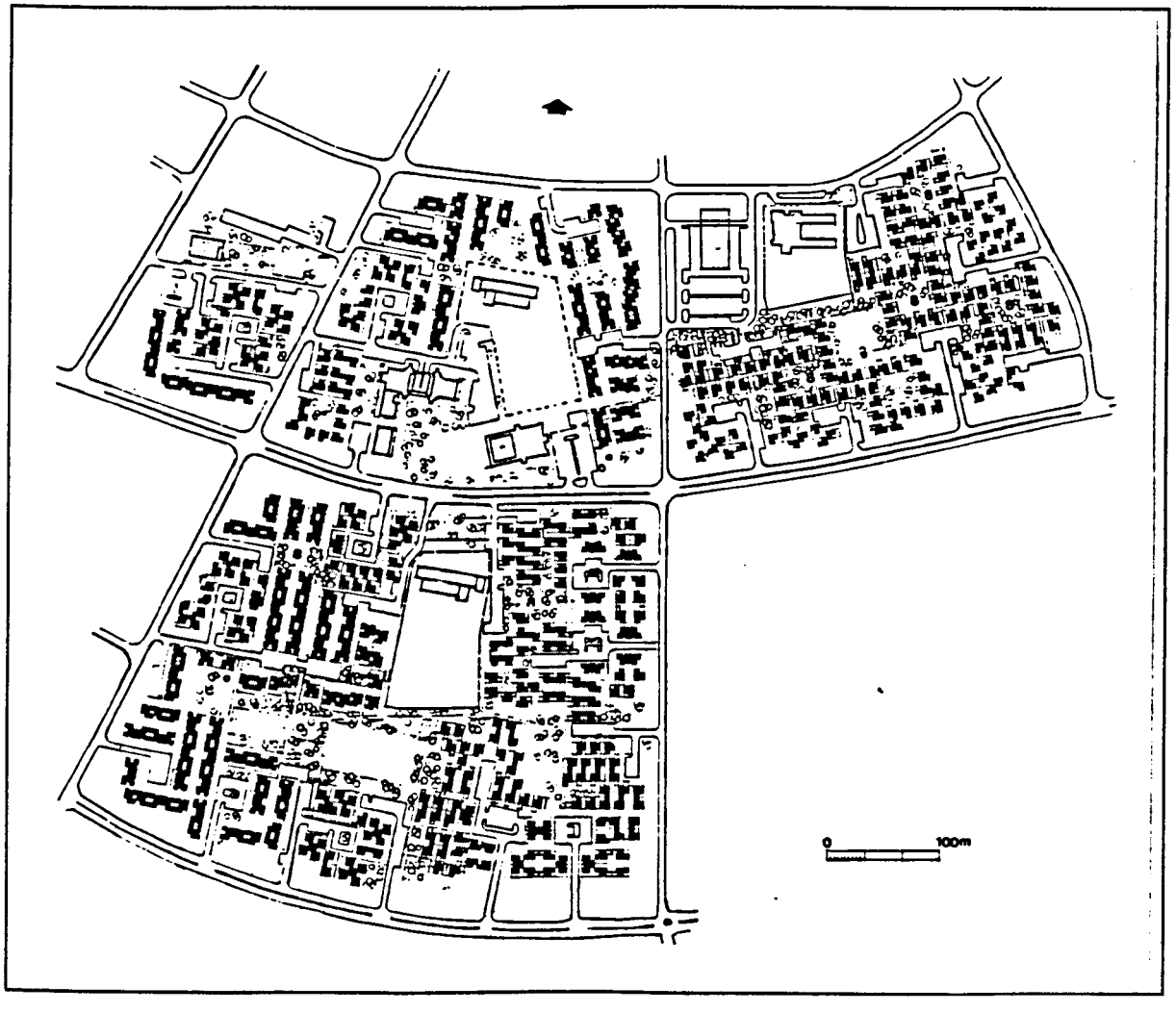


Figure 5.13: Contemporary settlement (616 dwelling units)

Source: Ministry of Housing Libya (1981)

5.8 The characteristics of the contemporary settlement of Ghadames

The contemporary settlement of Ghadames was affected by the concept of the master plan, which was based on Western models of development. It was characterised by isolated structures, high standards of construction and building materials, large spaces and modern infrastructure as well as dwellings randomly grouped. From the new master plan proposal, it can be seen that there was a greater amount of attention given to public open spaces, roads, commercial activities and car parking spaces than to the residential areas. Despite the fact that the dispersed layout provided more space, better access and facilities than the compact traditional layout of the old town, it is clear that it did not respond effectively to the social and climatic conditions of Ghadames. The new plan for housing did not take into consideration the importance of kinship and family structure, which had been the basis for the traditional way of life and so created problems and friction between neighbours which led to social disharmony.

5.8.1 New town layout

The contemporary settlement of Ghadames is located outside the oasis on upland, in the harsh area (figure 5.12). The new town was designed and built by foreign companies as mentioned above. Unfortunately the design concept had a particularly large and negative impact on the users' socio-cultural factors because free standing houses with wider open spaces around the buildings was unsuited to the environment. The modern housing design ignored the meaning and values of the users' moral, social and psychological attitudes. It adopted building codes which demanded western-style design and construction methods that removed Ghadames people from their socio-cultural values. The users' socio-cultural system that had existed in the old town was damaged in the new town and as a result,

Ghadamesian people are today facing many social problems.

5.8.2 Spatial organisation of the Ghadames contemporary dwelling

In the new town of Ghadames each dwelling unit is based on separate architectural masses, new building codes and new building materials. Sometimes there is a mixture of residential and commercial activities in the same building. If we look at the dwellings' plan and sections in the new town from the inside, it consists of different levels, depending on the type of dwelling (figure 5.14). The contemporary dwellings are characterised by a lack of similarity in terms of form, size and distribution of elements. All the dwellings' openings are large and face directly onto the outside public space. In addition, there are large unprotected openings overlooking the neighbouring houses, the wider asphalt unshaded streets and passages. The size and position of these openings have a great impact on the private indoor space.

5.8.2.1 The size of the dwelling

There are many different types of dwelling which can be found in the contemporary settlements of Ghadames. These could be categorised as apartment buildings, villas and detached houses. However, this study focused only on the 616 dwelling units built by the Government. The average size of plot in the contemporary settlement under study is between 115 to 273 square meters, and the dwelling area is between 131 to 250 square meters. For inside elements; the living room area is about 15 to 20 square meters, the bath room area is 2 to 6 square meters, the kitchen area is 8 to 13 square meters, the living room area is 18 square meters, the bedroom area is 15 to 21 square meters, and the lack of any storage space will be presented in more detail in chapter seven.

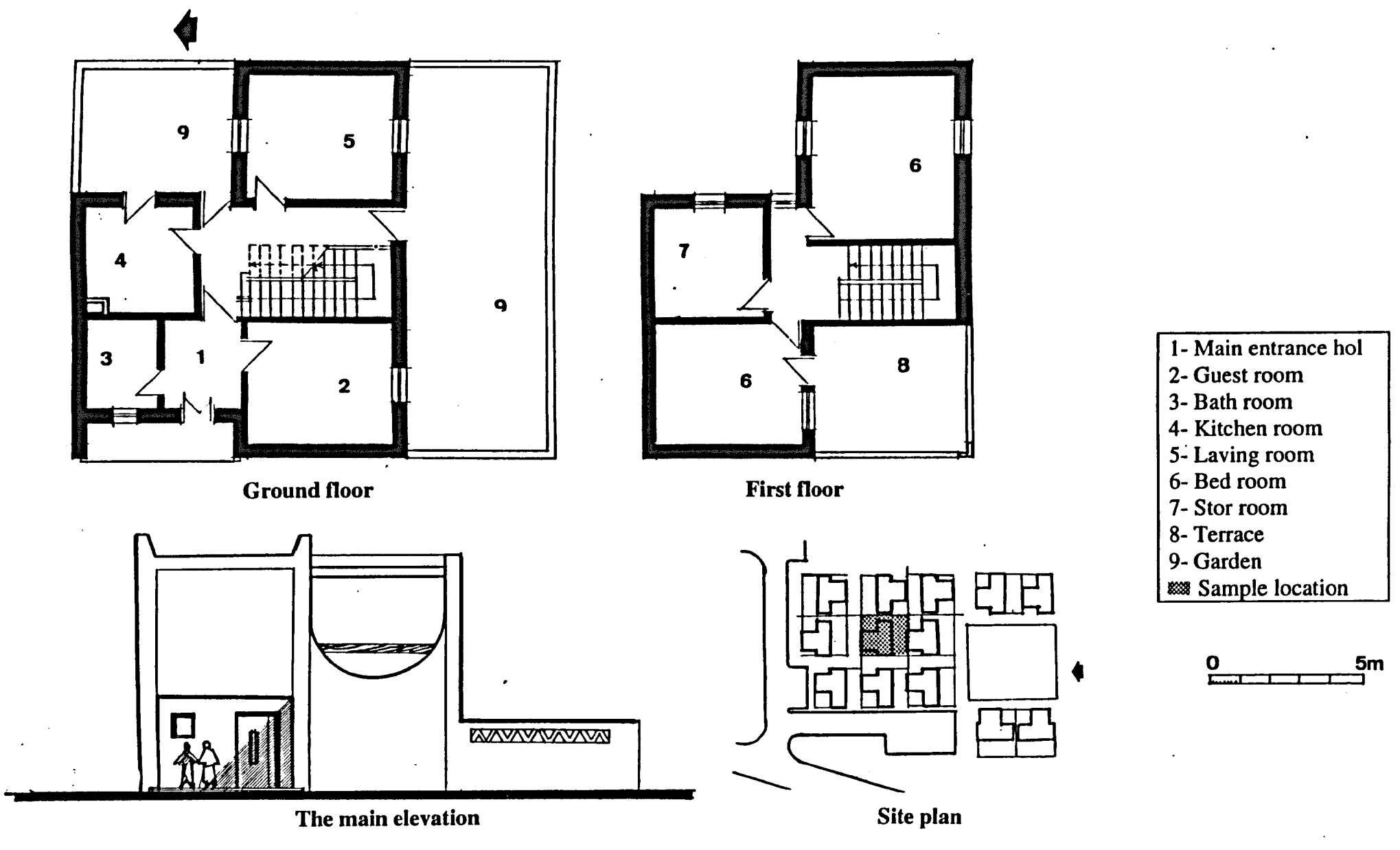


Figure 5.14: Contemporary dwelling plan arrangement

Source: Fieldwork, 1995

5.8.2.2 Plan arrangement

The built environment in general, and housing in particular, reflect changes in society. In Ghadames new town this is clearly evident in the development of the housing design, from traditional houses to various housing types. The new dwelling was influenced by the Western plan which affected the internal arrangement of space and made the access to such houses, particularly when the family has a visitor, very difficult. This happened because the new dwelling was designed by architects who did not have adequate information about the socio-cultural factors and ways of life of the people for whom they were designing.

The plot of the 616 contemporary dwelling units is usually surrounded by high walls, with the dwelling located in the centre surrounded by a garden, therefore the windows and terraces open directly to the outside space. Figure 5.14 represents the contemporary dwelling space arrangement of the 616 dwelling units in the study. The ground floor has only a single main entrance, a living room, a guest room, a bathroom used by the visitors and family members located in front of the guest room. The kitchen, where the women normally spend much of their time, is located on the ground floor near the guests' area. In addition, the kitchen window opens directly to the outside, or to the neighbouring dwelling creating privacy problems. There is also a room used by family members or female visitors and a staircase up to the next floor. The first floor is designed as a family sleeping area only and includes one room used as store or kitchen, as well as a balcony. The balcony is a foreign element inherited from the Italians. Its purpose is to give additional space to the dwelling but the socio-cultural and climatic problems make the use of the balcony extremely difficult.

5.8.3 Building Methods and Materials

The structural system of the new dwelling can be simply described as a skeleton structure, where reinforced concrete is used for columns, beams, floors, roofs and hollow cement blocks are used for walls. The main building materials which were used in the new town of Ghadames are: CEMENT, STEEL, AGGREGATE, HOLLOW CEMENT BLOCKS, WOOD, MOSAIC, and MARBLE. All foundations, stairs, and lintels are constructed of reinforced concrete, roofs and floors are constructed of concrete, mortar, reinforced concrete and mosaic. Walls are constructed of hollow cement blocks, windows and doors are made from wood or steel. The production of these types of building materials has been increased by the public schemes. However, production is still below the level of need, and national development is still concentrated on a few types rather than the full exploitation of resources, consequently, the prices of these building materials are always going up.

The influence of Western and Eastern companies, was one of the main factors in the choice of these building materials and design changes in Libya. The socio-cultural values and climatic conditions were not taken into account when these changes were made and dwellings were constructed without any attention being paid to socio-cultural and climatic needs, where the sharing of entrances and corridors is not desirable. For these reasons, modern dwellings are not popular with local families.

5.8.4 Street patterns

In an area like Ghadames where the socio-cultural values and hostile climatic conditions are dominant, outdoor and open spaces need to be treated just as carefully as indoor spaces. In other words, both of them need to respect people's socio-cultural factors and the need to be protected from the hostile climate. However, in Ghadames new town the dwellings are free standing, the asphalt streets and passages are wide and lack any places

for users to meet or sit and also lack any shade to protect people from the heat. Another important point is that the new settlement lacks harmony and unity due to the different and alien building forms.

The fact that the inhabitants of the new town always return to their old houses during religious, wedding and fraternal occasions, as well as during the hottest periods, demonstrates the functional achievements of the traditional architecture. It ought to be seriously considered that the local traditional house form should provide a model for new building in the desert (figure 5.15).

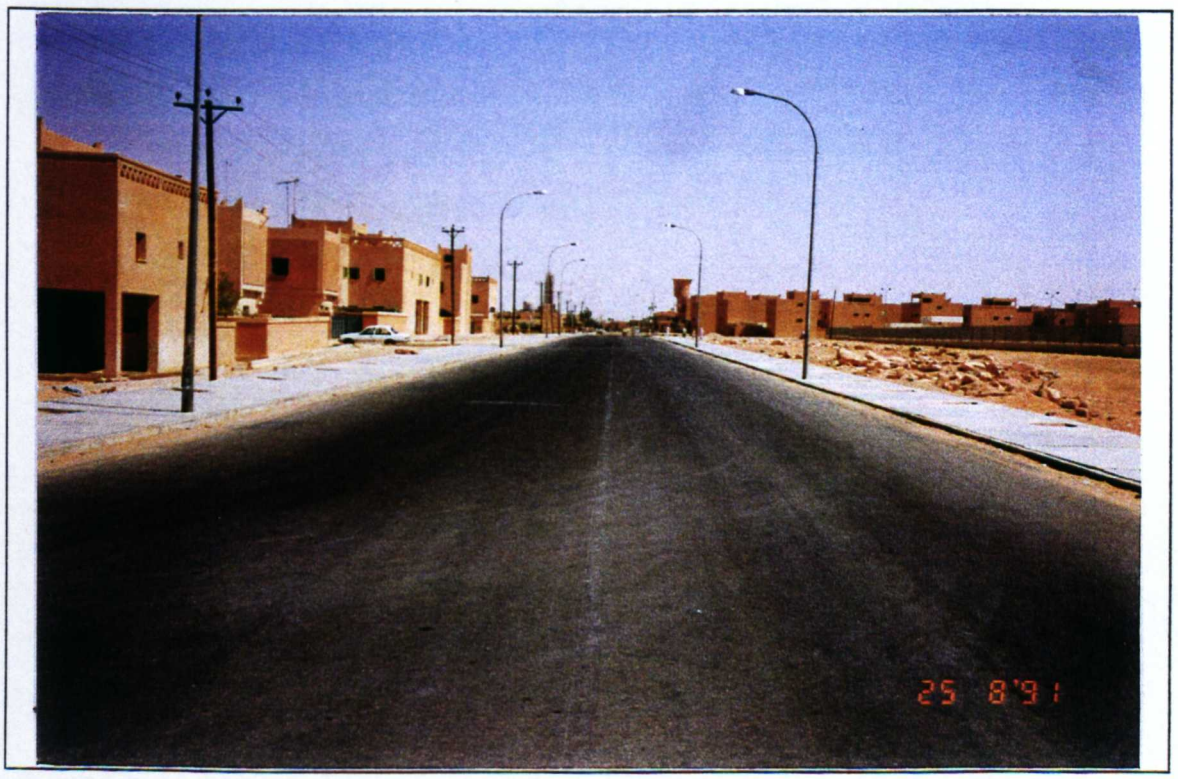


Figure 5.15: Streets patterns of the contemporary settlement

Source: Fieldwork, 1995

5.9 General Characteristics of Respondents

5.9.1 Population Age Composition

The general feature of the population age in the study sample is that out of the total number of males, 11 per cent were aged from 1 month to 6 years, 18 per cent were aged from 7- 18 years, 19 per cent were aged from 19-59, and only 1 per cent were over 60 years. Out of the total number of females, 11 per cent were aged from 1 month to 6 years, 18 per cent were aged from 7-18 years, 20 per cent were aged from 19-59 years, and only 2 per cent were aged from over 60 years (figure 5.16 shows the age composition of the general population).

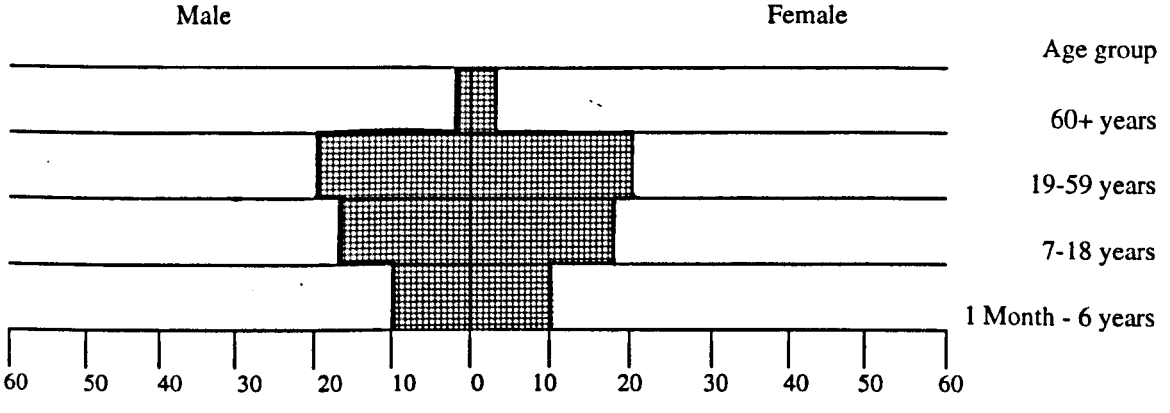


Figure 5.16: General Population Age Composition *(percentage)*

Source: Fieldwork, 1995

5.9.2 Sex, Marital Status and Age of Head of Household

A general feature of the sample respondents is that 96 per cent of the heads of household interviewed were married and only 4 per cent widowed or divorced. Figure 5.17 represents the sex and marital status of the head of households. The predominant age

group interviewed was the middle age group ranging from 31 to 50 years of age (76 per cent). The oldest age group, that over 51 years, was 21 per cent. However, the youngest age group, those between 20 to 30 years old, was the smallest percentage in the sample. The age distribution for the sample is given in figure 5.18.

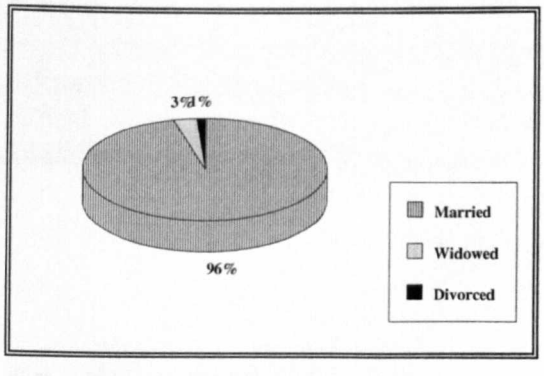


Figure: 5. 17 : Sex and marital status of head of household

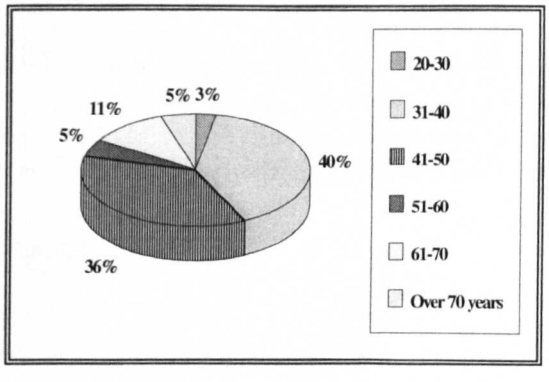


Figure 5.18 : Age group distribution of head of household

Source: Fieldwork, 1995

5.9.3 Occupation of head of household

According to the results of the survey, about 82 per cent of the households interviewed were government employees, working as teachers in primary or secondary schools, medical doctors working in Ghadames clinics and hospitals, police men and so on. Only a small proportion, 2 per cent of the households, were working as employees in the private section, 4 per cent were self-employed, 8 per cent were retired, and 4 per cent unemployed. Table 5.4 represents the occupation distribution. According to the interviewees, the majority of Ghadamesian people who are self-employed, such as farmers and traders, were men, and the majority of Ghadamesian women were housewives, working at home cooking, cleaning and doing some handicrafts. However, since 1980, when the Ghadamesian people moved from the traditional residential area,

the majority of respondents changed their occupation. Formerly they worked on the land as farmers but the new area was marsh land which was unsuitable for cultivation.

Table 5.4: Occupation of head of household

Government employee (Teacher, Politician, Planner, Architect, Lecture, Medical Doctor, Police, etc.)	82%
Private employee (Lawyer, Architect, Medical Doctor, etc.)	2%
Self-employer (Farmer, Trader, etc.)	4%
Retired	8%
Unemployed	4%

Source: Fieldwork, 1995

5.9.4 Household type and size

As a general feature of the households interviewed, 91 per cent were of the nuclear household type, and 9 per cent were extended households. Most of the extended households consisted of married children living with their parents (appendix 5.1), because these people could not obtain permission to build their own homes, or get houses from the government. The size of these households varied from 2 to over 11 persons around an average of 5.8 persons. More than half the sample (57 per cent) consisted of households of 4 to 6 people, 10 per cent of the sample consisted of households of 1 to 3 people, 28 per cent of consisted of households of 8 to 10, and only 5 per cent of the sample consisted of households of over 11 people (see figure 5.19). The majority of the households had children of different ages (appendix 5.1).

5.9.5 Income level

The income distribution among the respondents shows that the largest proportion, 40 percent, have a monthly income around 201 to 300 LD. per month, 24 per cent have around 151 to 200 LD., 13 per cent have around 120 to 150 and 23 per cent have a

monthly income of around 301 to 401 LD. Thus, the majority have an monthly income of between 151 to 300 LD, about 64 per cent of the whole sample population. The analysis shows that the largest number of households interviewed is in the middle-income group (figure 5.20), which is considered low at present living costs.

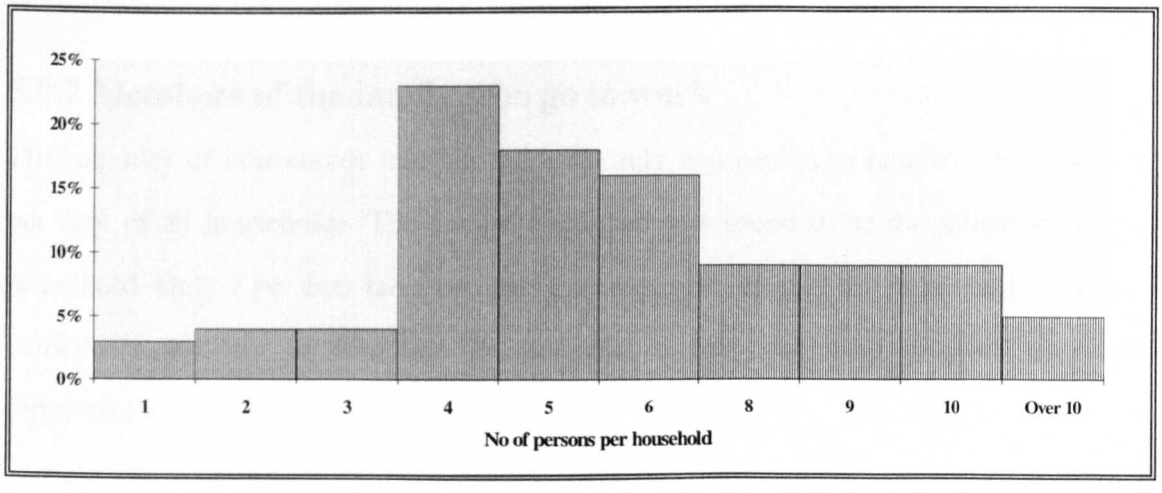


Figure 5.19: Size of the household

Source: Fieldwork, 1995

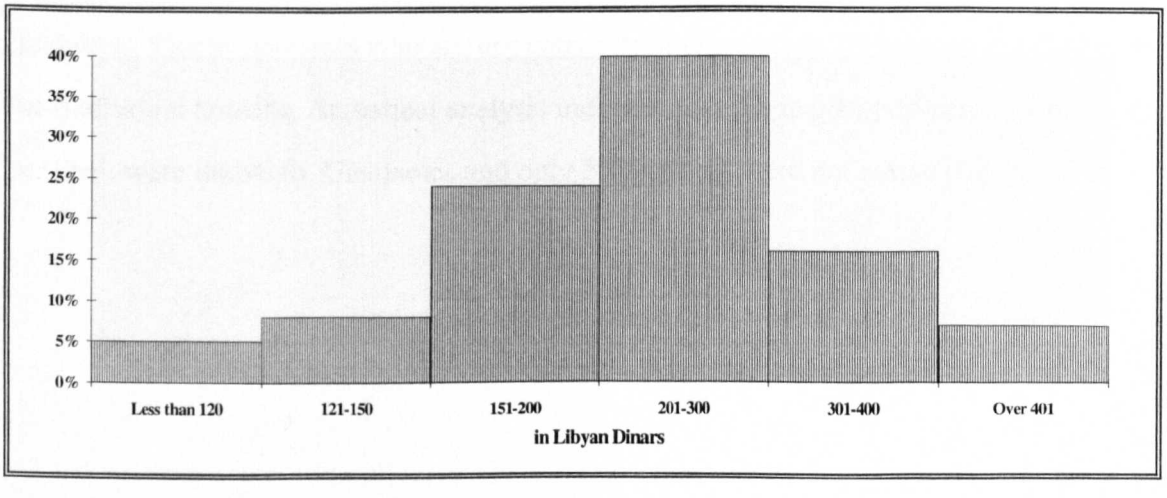


Figure 5.20: Total household monthly income (L.D)

Source: Fieldwork, 1995

5.9.6 Car ownership

Car ownership in Ghadames is low. Approximately 59 per cent of households in the sample have no car. This is because the city is not large like other cities in Libya, and all the facilities are in the same residential area. The proportion of households owning one car or more is 41 per cent. Appendix 5.1 represents car ownership distribution.

5.9.7 Members of the family who go to work

The majority of households interviewed have only one person in employment, about 87 per cent of all households. The person employed was found to be the father or head of household. Only 7 per cent have two persons employed, usually the father and mother, or sometimes the son or daughter. Furthermore, 6 per cent were disabled or retired (appendix 3).

5.9.8 Native-born Residents of Ghadames

It is very important to know if all Ghadamesian people are native Ghadames or not; this is essential in order to make a correct evaluation of the information gathered during the fieldwork. The respondents who are not native-born Ghadamesians have no experience of the traditional housing. Statistical analysis indicates that the majority of respondents, 95% per cent, were native to Ghadames and only 5% per cent were not native (figure 5.21).

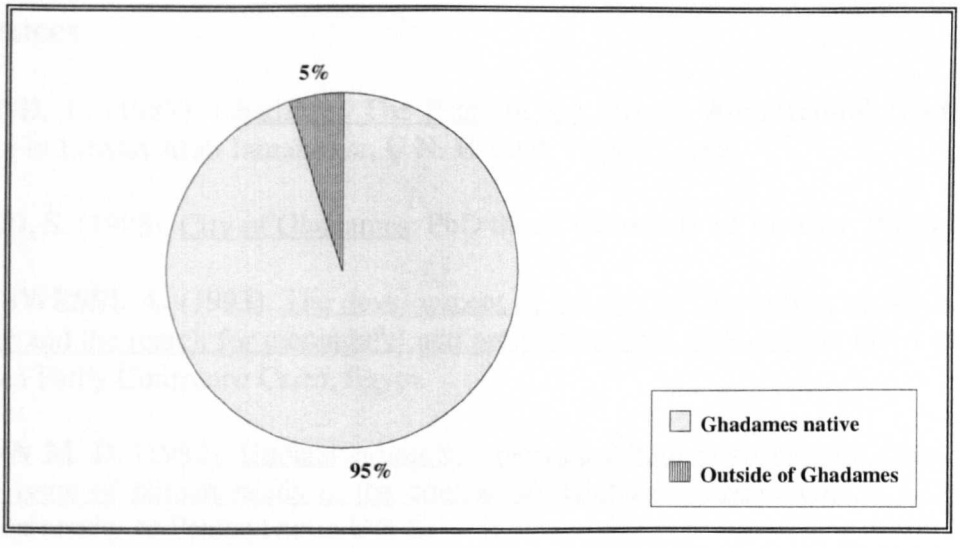


Figure 5.21:Native-born Residents of Ghadames

Source: Fieldwork, 1995

5.10 Summary

In this chapter efforts have been made to draw a complete picture of the case study area and to give an account of its history, geography, economy, population, climate, natural features and social life background. There was discussion of the existing housing characteristics under investigation in both the traditional and the contemporary areas. The settlements layout, spatial organisation of the houses, size, plan arrangement, building materials, streets and development were dealt with.

The general characteristics of the respondents in the study sample were highlighted in this chapter. This highlight is necessary because in chapters six and seven existing characteristics of traditional and contemporary housing will be used for evaluating house design in the whole system, from the settlement down to the dwelling, in order to demonstrate which of the existing houses, traditional or contemporary, responds better to their users' needs.

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CHAPTER SIX

CHAPTER SIX

EVALUATION OF USERS' SATISFACTION WITH THEIR TRADITIONAL HOUSING

Table of Contents

6.1 Introduction

The main purpose of this chapter is to investigate the nature of the relationship between the users' socio-cultural needs and the traditional settlement, neighbourhood, and dwelling design. Various techniques were selected to examine the respondent's satisfaction with the built environment, and closed-ended questions, interviews, and observations have been made. A detailed analysis of the users' overall evaluation of the settlement and traditional neighbourhoods is presented in this chapter as well as their feelings about the traditional houses in terms of response to social life requirements. The use of traditional house design components is known to make people more satisfied with their neighbourhood and home environment. This evaluation of the inhabitants' satisfaction levels with their traditional housing demonstrates the main factors affecting people's satisfaction in terms of choice, privacy, security, religion and prestige. Furthermore, by evaluating the traditional housing environment and surveying what the people like or dislike, it is possible to highlight the respondents' needs and expectations. The results are supported by percentage figures, cross tabulation, Chi-square for testing statistical significance and photographs. Additional tables, displaying the degree of resident satisfaction with their traditional housing can be found in the appendix. This evaluation of a residential socio-cultural environment depends upon the occupants themselves.

6.2 Users' Evaluation of their Traditional Settlement

Ghadames' traditional settlement is built on a very simple plan, using as little space as possible to adapt to the social life and climatic conditions. It is a huge maze of covered streets and great alleys. Entering the inhabited area is like entering an underground city or another world. The houses, public buildings, streets, squares, and other common spaces are grouped in a strong homogeneous mass occupying 10 hectares, containing seven

neighbourhoods and is completely covered (figure 6.1). In this sense "we may say that the house is considered as a small town while the town is considered as a big house" (Been Swessi, 1993:3). Everything seems to be tightly closed, except for an opening like a well, above which a little piece of sky can be see high up in the shape of a human eye. This settlement, inaccessible for a long time, has kept itself so spiritually intact that simply to have been born here was sufficient for one of its inhabitants to consider himself as the elect of God, while to die here was enough to be assured of a place in the kingdom of heaven. "To have lived within this settlement, is the best viaticum to firdus, or paradise" (Piccioli, 1935:215). It is located, as stated in chapter five, in the south east of the oasis in an area of thick palm trees where around the only source of water in the area, the Eyan-el Fars spring, in a valley protected from the harsh climate. Outside the wall of the oasis is a reddish, golden-brown desert, flat, rock-strewn, completly barren, stretching away in all directions. The study of this settlement is beneficial in forming an idea of its response to environmental conditions and its users' socio-cultural needs. One way to assess how well a settlement functions, or how adequately it meets the socio-cultural needs and demands of the residents, is by asking people how satisfied they are with their settlement and social environment.

The residents were asked what they thought generally about their settlement. The majority of interviewees, 85 per cent, were satisfied, 12 per cent expressed no opinion, 2 per cent were dissatisfied, and 1 per cent made no reply (figure 6.2). Among the reasons for liking the traditional settlement were the availability of public services such as water, schools, mosques, markets and other public buildings, and that the houses were well planned according to their social needs, located in a nice green area, and naturally well protected from the harsh climate. Residents are optimistic about the future improvement in the maintenance of the settlement. Currently they are adversely affected by the lack of proper cleanliness and maintenance of the traditional settlement.

Figure 6.1: Traditional settlement location

Source: Fieldwork, 1995

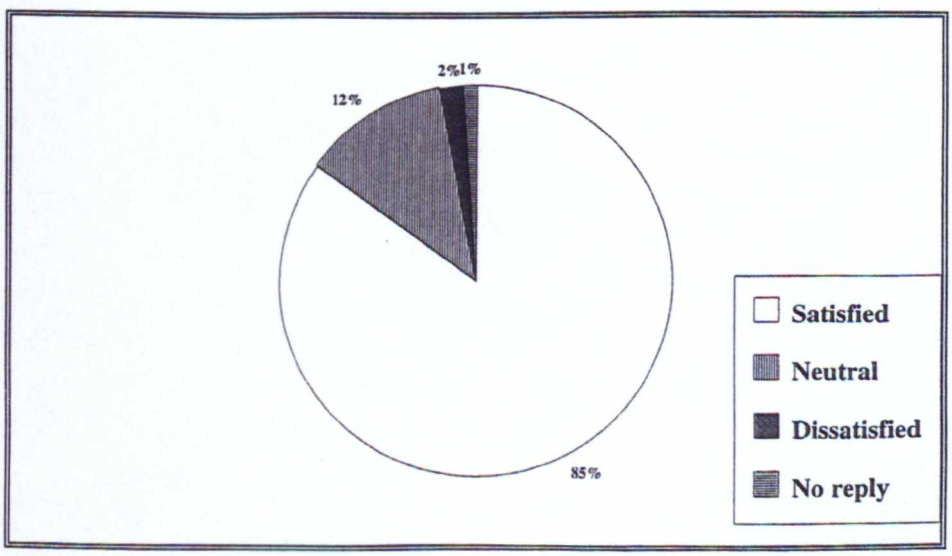


Figure 6.2: Respondents degree of satisfaction with their traditional settlement

Source: Fieldwork, 1995

Besides questioning the interviewees about how satisfied they were with their settlement, a statistical analysis using cross tabulation was undertaken to find out which demographic factors influenced the level of satisfaction at different ages. The younger age group, those under 30 years of age, were recorded as being less satisfied with their traditional settlement than middle-age groups (31-50) and older age groups (51-70+) (table 6.1). The main modes of transportation in the traditional settlement were animals (camels, donkeys, horses), carts (pulled by animals) and wallking. These types of transportation play the main role in shaping the streets. However, at the present time transportation system is changing; people use modern system of transportation such as cars and other machines instead of the animals which are in complete conflict in terms of roads and streets' system. For this reason the younger age group complained because the streets are too narrow to permit the use of modern vehicles. They also see the sewage system as inadequate.

Table 6.1: Cross table of age of respondents and their feeling about their traditional settlement.

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	43	88	6	12	0	0	0	0	49	100
41-50	38	86	3	7	1	2	2	5	44	100
51-60	4	80	1	20	0	0	0	0	5	100
61-70	9	69	3	23	1	8	0	0	13	100
Over 70	5	83	1	17	0	0	0	0	6	100
Total	102	85	14	12	3	2	2	1	120	100

Source: Fieldwork, 1995

Several key figures of Ghadames, such as the Mayor, the Director of Housing Office and the Director of Planning were asked their opinions about the traditional settlement. In their opinion, it demontrates the important aspects affecting residents' satisfaction with

their settlement because socio-cultural values and the physical environmental conditions were taken into account by the designers. Public facilities such as schools, markets, mosques, hotel, squares are reasonably easy reach on foot (figure 6.3). Additional relevant information was collected from other key figures in Ghadames, who are proud of their history and the traditional housing design, and experienced no problems with living in the traditional houses, particularly since this settlement responded to the social and climatic life of the users. However, they thought that the main problems were caused by the narrowing of the streets and the inadequate sewage system. Moreover, when asked about the maintenance of the traditional housing area the key figures said that no financial funds were available to ensure this. They also said that another of problem was that some of the traditional houses were owned by households who were unable to bear the responsibility of maintaining them. Attempts are now being made to restore these dwellings by using money from tourism.

In summary, socio-cultural values and other environmental aspects, particularly climatic conditions, are the main factors affecting the traditional Ghadamesian settlement. The roads, streets, alleys and housing systems reflect their users' lifesyle characteristics and the climatic environment. Moreover, every space in the settlement has to meet both kin-ship, functional and physical needs and preserve its ancient history in its architecture. Hassan (1982:195) notes in his study of Ghadames that "space arrangement, covered streets, covered squares and open squares, markets, mosques and other features serve to declare the social identity of the inhabitants by providing a harmony between social and physical space".

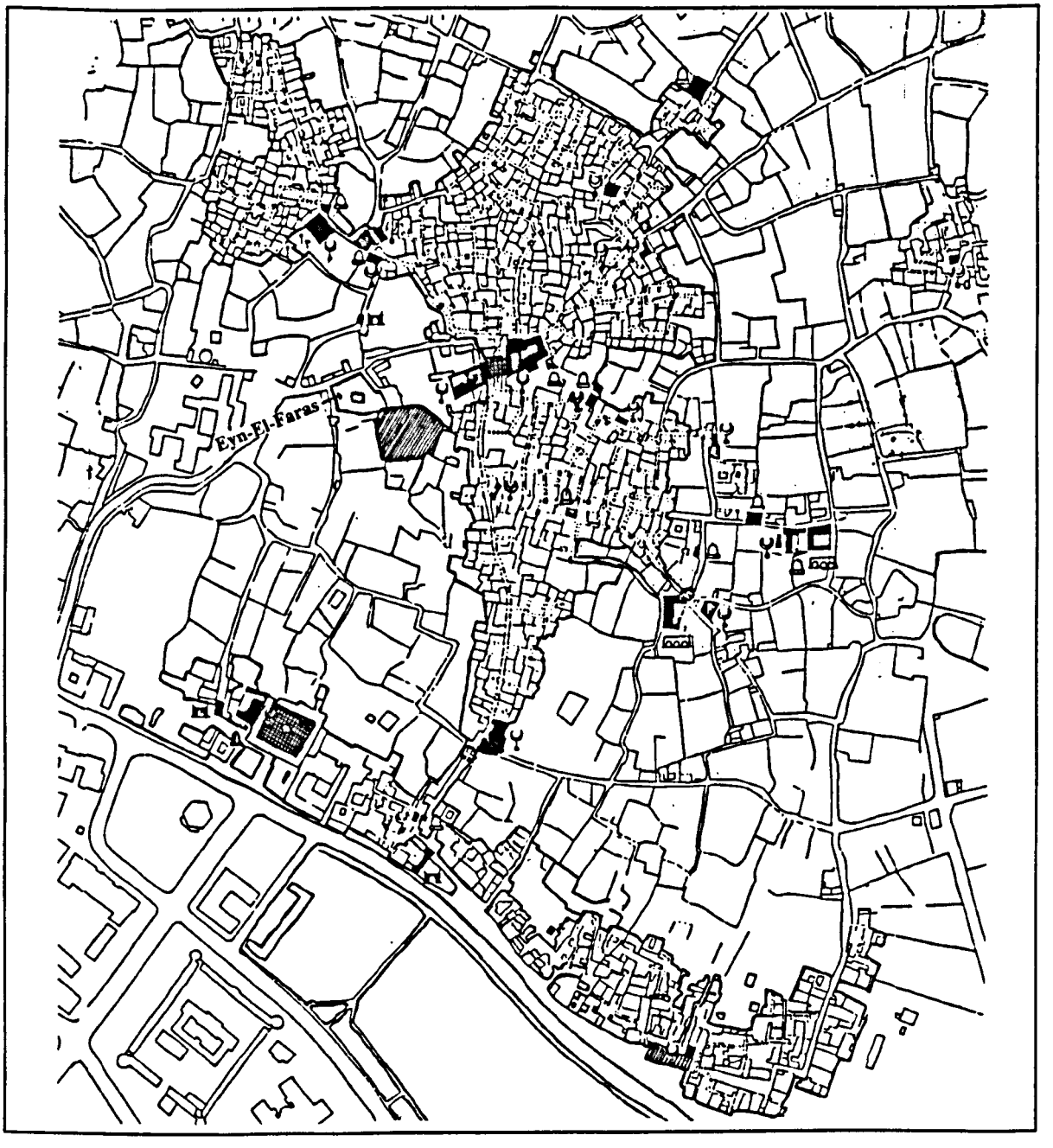


Figure 6.3: Public Buildings in Ghadames traditional settlement

Source: Fieldwork, 1995

6.3 Users' Evaluation of their Neighbourhoods

There are various characteristics and attributes of the home which people are often concerned about when looking for new places to live. The neighbourhood quality, particularly in terms of socio-cultural response, is of great importance to almost all households. It is the objective of this study to examine the satisfaction levels of the respondents previously living in the traditional residential area, in order to evaluate the neighbourhood qualities in terms of their users' social needs. Sample residents were asked to express their overall satisfaction with their immediate residential socio-environment. On a three point scale several questions were asked during the interviews and observations were made in order to evaluate five aspects of their neighbourhood, these were: the choice of neighbourhood, security, privacy, religious facilities and prestige needs.

6.3.1 The choice of the neighbourhood

6.3.1.1 Location

Respondents were asked to state their feelings about the opportunities they were given to choose their neighbourhood and whether they were satisfied or dissatisfied with it. The location of the neighbourhood, its distance from the workplace, as well as the availability of, or accessibility to, services and facilities such as shopping areas, schools, parking and the density of population were found to be related to residents' overall satisfaction. Informal discussion revealed that usually occupants of the whole settlement share power and responsibility in making decisions about collective work, choosing location, construction, helping the needy and all the other issues which have to be implemented on the tribal or community level. Hakim, (1986) came to a similar conclusion in his study of

two areas of North Africa (Tunisia and Marocco) when he found that Islamic legislation concerning the involving of people in making decisions, particularly about house design process and use of land, had a maked effect on the built environment.

The analysis of the components of residential satisfaction in the traditional neighbourhood indicates that there is adequate availability of services and facilities. The neighbourhood provides efficient means of access to the various facilities, which is an important requirement of the people living there (figure 6.4). As shown in figure 6.5, 69 per cent of the respondents indicated a high degree of satisfaction with their neighbourhoods, 17 per cent expressed no opinion, and 14 per cent expressed dissatisfaction. The results indicate that residents are generally satisfied with their traditional neighbourhoods. According to age group, we found that younger groups (20-40 years) were less satisfied with their traditional neighbourhoods than middle-aged (41-50 years) and older-aged (51-70 years) groups. Perhaps this can be explained by the fact that younger people tend to be more critical of their neighbourhoods because they are more modern in their ways (table 6.2). A discussion carried out with a younger age group indicated that the availability and nearness to services and facilities, such as schools, service stations, mosques and recreation places, and the accessibility of the area in general is a sign high of satisfaction. Moreover, residents who have most of their relatives and friends living nearby, were more satisfied than those who had very few, or none, in the same neighbourhood. On the other hand, when considering what the residents disliked about their neighbourhood, most complaints centred around the poor condition of the traffic system.

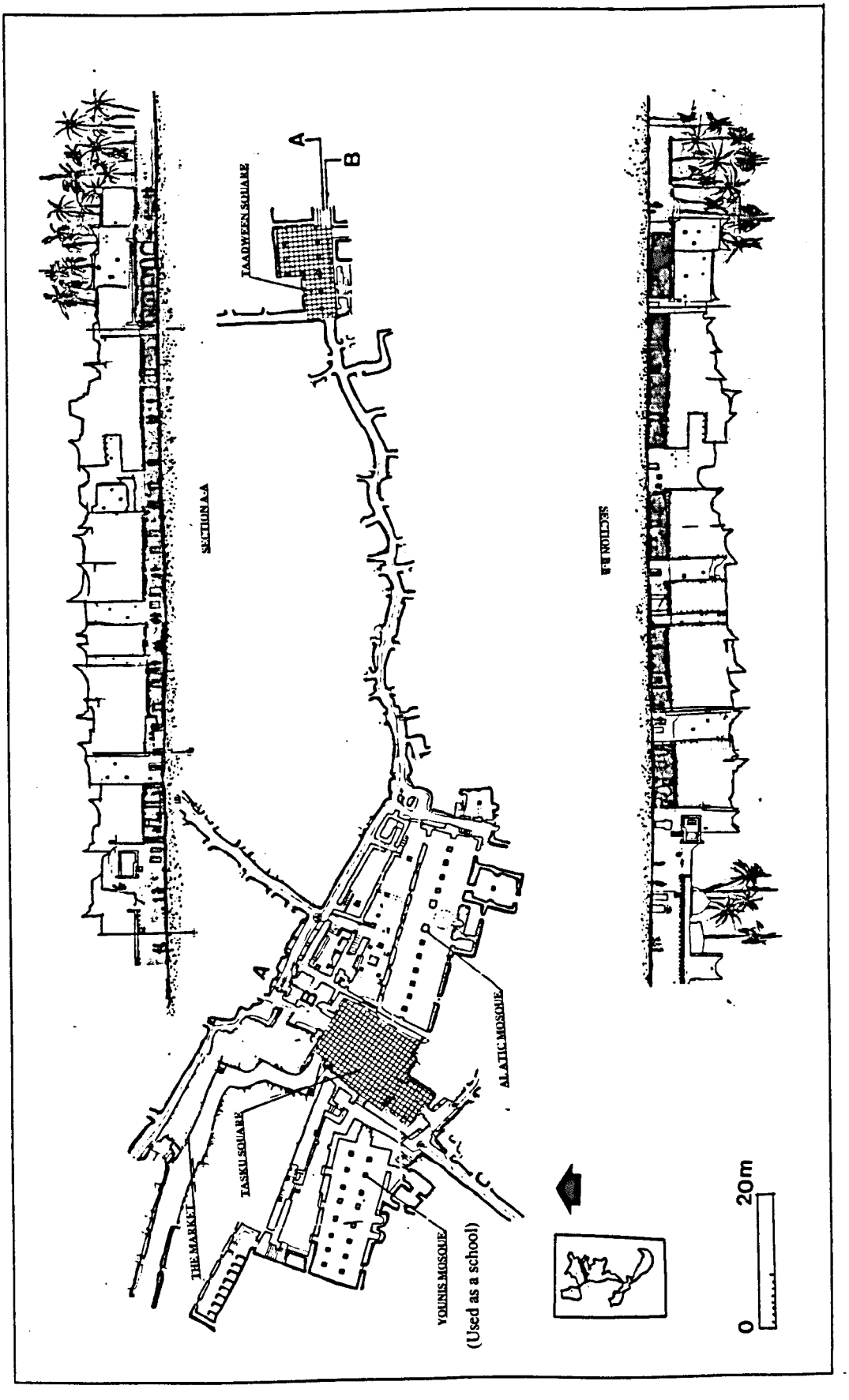


Figure 6.4: Ghadames traditional neighbourhood (Tusku)

Source: Fieldwork, 1995

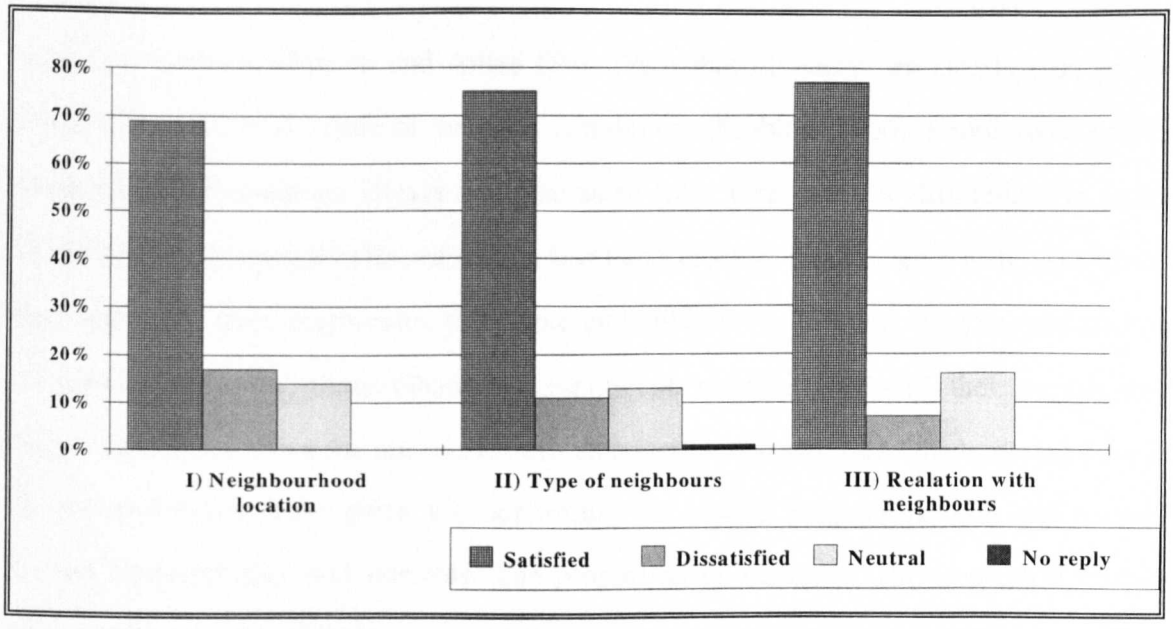


Figure 6.5: Respondents' degree of satisfaction with their traditional neighbourhood in terms of choice

Source: Fieldwork, 1995

Table 6.2: Cross table of age of respondents and their feeling about their traditional neighbourhoods in terms of location

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	35	71	9	18	5	10	0	0	49	100
41-50	31	70	7	16	6	14	0	0	44	100
51-60	3	60	0	0	2	40	0	0	5	100
61-70	7	54	4	31	2	15	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	83	69	20	17	17	14	0	0	120	100

Source: The Fieldwork, 1995

6.3.1.2 Type of neighbours

Ghadames, as mentioned earlier, is divided into seven neighbourhoods. There were built according to the tribes who lived in them, which are called Tasku, Djarrasan, Mazzigh,

Tharefra, Tangzin, Giorsan and Aulad Blel. The tribal divisions are clearly part of the political and social structure of the oasis community (Eldblon, 1960). People who live in these neighbourhoods are always from the same tribe, there are few differences in terms of occupation, household size, education level and income. Respondents were asked how they felt about their neighbours, the ethnic and cultural background, or type, and almost 75 per cent of the traditional Ghadames respondents were satisfied with their neighbours. Users were asked about the reasons for this satisfaction and said that Ghadamesian people in previous times were given the opportunity to choose neighbours with whom they shared characteristics and interests. The proportion of residents who expressed neither satisfaction nor dissatisfaction was 11 per cent and the percentage of people who were dissatisfied with their neighbourhood was found to be very low, only 13 per cent, and most of them were not Ghadamesian but Tuareg people who live around the Ghadames oasis. One per cent made no reply (figure 6.5).

Table 6.3 represents the residents' degree of satisfaction according to their demographic characteristics; for instance the young age group were less satisfied than the middle and old age groups. During discussions with the younger age group it was pointed out that residents' demographic characteristics such as household size, income, occupation and age of head of the household should be taken into consideration when choosing a neighbourhood rather than the social relationship of neighbours. However, the middle age and older age groups were happy with their neighbours; the older people criticised the younger people's opinion because their system of grouping residents is based on their income, occupation, education level and so on where remarkable social differences between residents can be felt.

Table 6.3: Cross table of age of respondents and their feeling about their traditional neghbourhoods in terms of type of neighbours.

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	38	78	8	16	3	6	0	0	49	100
41-50	31	71	5	11	7	16	1	2	44	100
51-60	3	60	0	0	2	40	0	0	5	100
61-70	11	85	0	0	2	15	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	90	75	13	11	16	13	1	1	120	100

Source: The fieldwork, 1995

6.3.1.3 Relation with neighbours

"Family ties between tribes or clan members are still very marked in the nomadic and most of the Saharan communities" (Hassan, 1982:215). Indeed this fact was observed in Ghadames' traditional area, for instance, in the relation between neighbours' classification by clan and tribe. Respondents pointed out that the presence of relatives in the residential area also tended to have an important effect on residents' levels of satisfaction. Residents who have most of their relatives and friends living nearby were more satisfied than those who had very few, or none, in the same neighbourhood. In our sample, the majority (77 per cent) of the traditional neighbourhoods' respondents, were found to be satisfied with their neighbours and had no problems. Seven per cent expressed no opinion, and only 16 per cent were dissatisfied with their relations with neighbours (figure 6.5).

Users who were asked about the reasons for satisfaction pointed out that the traditional area was divided into seven neighbourhoods according to the number of tribes. Every tribe has its own neighbourhood and for that reason the users were very happy with their neighbours, because they know each other, exchange visits with them frequently and are ready to help when needed. In other words, a residents' relationship with neighbours in

the traditional area has been on a positive level, because people had the opportunity to select their neighbours. Relative homogeneity increases levels of satisfaction with the social life in traditional residential areas and promotes social harmony between neighbours.

Cross table analysis shows that respondents' level of satisfaction was different according to their age group. Young age groups were less satisfied with their traditional neighbourhood than the middle and old age groups (table 6.4). Young age groups were concerned about neighbours' characteristics, as explained earlier, such as age, educational level, occupation, household composition and household income. In summary, there is a tendency toward homogeneity in the Ghadames traditional built environment because of the harmonious way in which its inhabitants' physical and conceptual spaces came together. This homogeneity resulted from shared unwritten rules and living near relatives.

Table 6.4: Cross table of age of respondents and their feeling about their traditional neighbourhoods in terms of relation with neighbours

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	1	33	2	67	0	0	3	100
31-40	34	69	5	10	10	21	0	0	49	100
41-50	35	79	2	5	7	16	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	93	77	8	7	19	16	0	0	120	100

Source:The Fieldwork, 1995

6.3.2 Security/safety

"A good environmental image gives its possessor an important sense of emotional security" (Lynch, 1960:4). The desire for protection against street crime and the ensuring of the safety of their possessions from crime was found in almost all of the respondents in Ghadames. 90 per cent were satisfied with their neighbourhoods in terms of security/safety, 9 per cent expressed no opinion and 1 per cent, who rated their neighbourhoods negatively, were dissatisfied with the secuirty/safety factors (figure 6.6). People were asked about the reasons for the satisfaction. A very old interviewee, Shaikh Gasem, (1995) pointed out that:

> "Ghadamesian people in the past never closed their shops. When they went to pray, they just put a stick in front of the door to indicate that they were temporarily absent and would shortly return. In those days no one broke in and committed burglary. It was a law-abiding community, people knew their neighbours, and had grown up with them". During the entire length of his long life he had never observed any crime being committed in his traditional area.

In addition, in the past, the whole traditional residential area was surrounded by a wall with of seven gates. On top of each gate there was a room for use as a watchtower. These gates were opened during the day time and were closed at night. According to Yasha, (1973: 25) "the porter never opens the gate before he knows the person; if he is Ghadamesian, the gates open, if not, the porter should know the identity of this person and what he wants before he opens the gate". These gates made Ghadamesian people feel more secure inside their residential area. The narrow twisting street and alley system had the advantage of providing a secure defence by confusing the enemy if ever he succeeded in penetrating the settlement wall. This fact is observed also by Thwaite (1969: 90) who stated about the Ghadames visitor:

"It is easy to get lost, walking down the dark covered alleys. You walk for about twenty yards, and then perhaps attracted by some decorative detail on the white plaster arches you branch off down a passageway, which comes to a dead end at a high blank wall, or you are suddenly confronted by a handsome massive door and no way out but to turn round and go back the way you came".

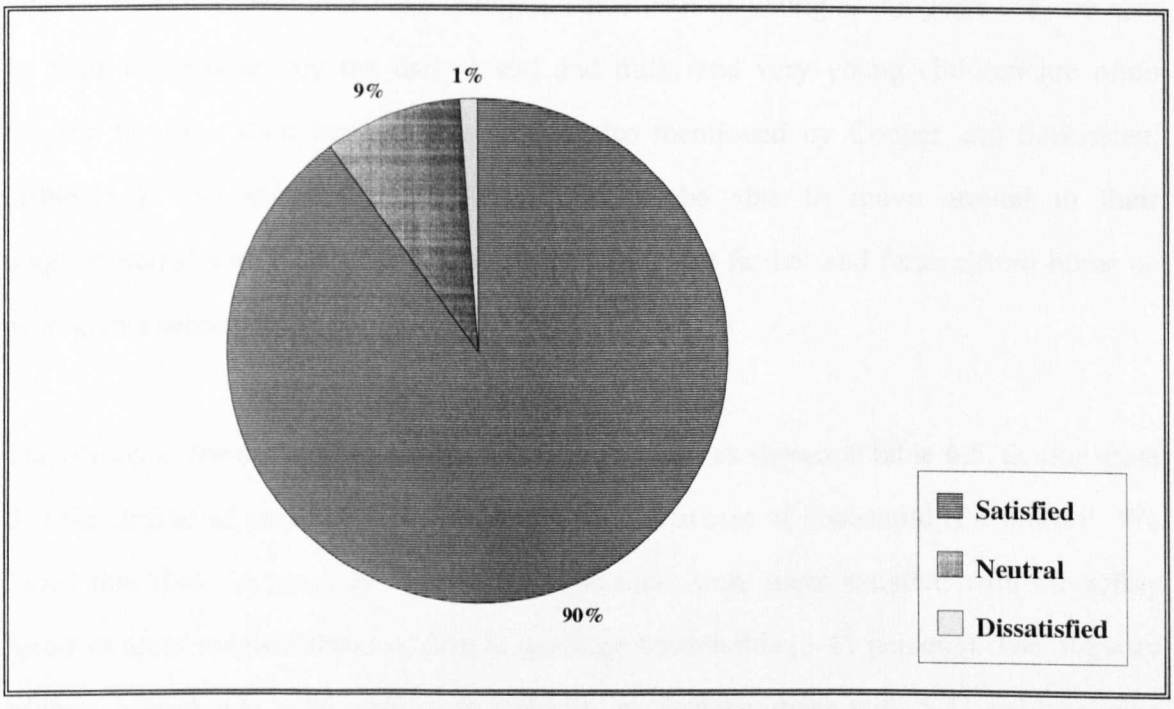


Figure 6.6: Respondents' degree of satisfaction with their traditional neighbourhood in terms of security/safety

Source: Fieldwork, 1995

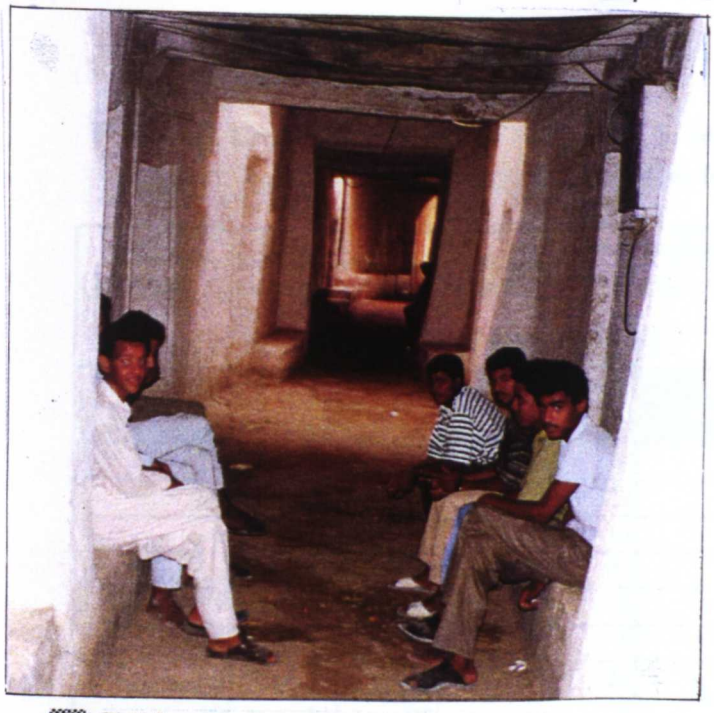
A discussion revealed that Ghadamesian people today complain that some of them rent out their traditional homes to foreign people who are seeking refuge from neighbouring countries. Because there is no legal control over these immigrants, it is difficult to prevent crime and law breaking. This was directly observed by the author during the fieldwork.

Ghadamesian families, like others in the country, have large numbers of children (2 to11). In all the households, the women in particular prefer to keep their children under their close supervision. "There were two voices in Ghadames; the voice of the children and the

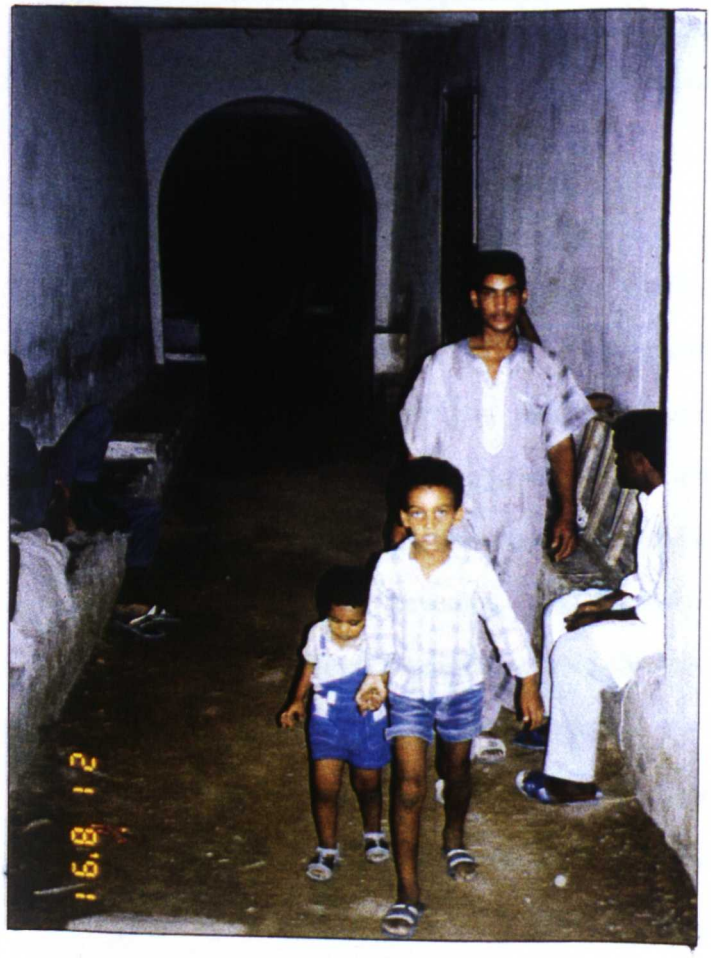
voice of the running water" (Piccioli, 1935: 213). Indeed this fact was observed in the traditional neighbourhoods during the fieldwork where some streets and squares were reserved for children's use in complete safety (figure 6.7). The respondents were mainly concerned about preventing their children from fighting each other. As reported in earlier interviews, it was mentioned that children, sometimes as young as ten years old, are sent by their mothers to buy the daily bread and milk, and very young children are often playing far from their homes. This fact is also mentioned by Cooper and Sarkissian, (1986:111) who stated that, "children need to be able to move around in their neighbourhood safely and to take short trips to explore farther and farther from home so as to gain a sense of independence".

The results of the cross tabulation and Chi-square test, as shown in table 6.5, demonstrate that the degree of satisfaction was strongly related to size of household ($P< 0.005$)[1]. We found that those in small households (1-2 persons) were more satisfied with the safety factor of their neighbourhoods, than in the large households (3-11 persons). The majority of large households, who have more children, particularly those with 5-11 persons, who spent much of their day time outside their houses in the meeting and playing areas had more experience of their neighbourhoods' safety. On the other hand , single people and small households (1-4) person had fewer experiences of the neighbourhood safety because they spent most of their time in their homes and with their friends in their houses. However, most of the complaints were about the problem of fire risk in the residential area where the narrow streets prevent the entry of the fire engines.

[1] p: the significance of a variable indicates the strength of our argument that this variable is affecting the residents' satisfaction. The smaller the p-value, the more sure we can be that this variable is important.



Children's play area inside covered squares



Children's play area in the street

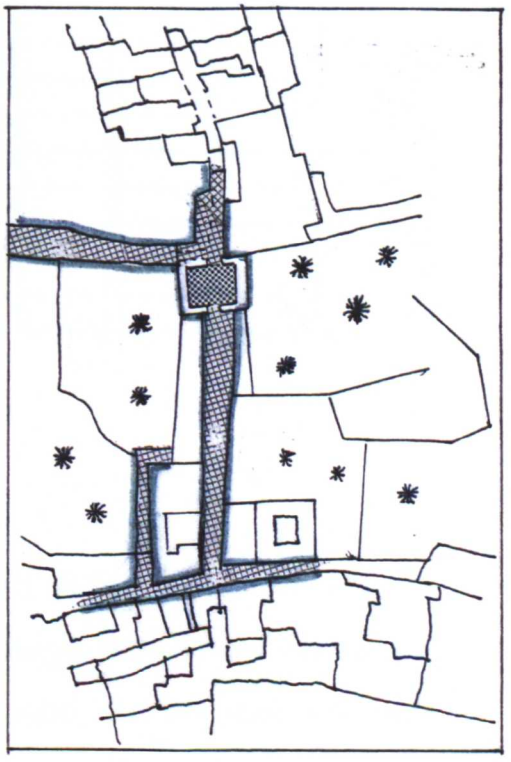


Figure 6.7: Children's play and sitting areas

Source: Fieldwork, 1995

Table 6.5: Cross table of size of household of respondents and their feeling about their traditional neighbourhood in terms of security/safety

Household size	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		Missing			
	No	%	No	%	No	%	No	%	No	%
1	2	67	0	0	1	33	0	0	3	100
2	1	25	2	50	0	0	1	25	4	100
3	4	80	1	20	0	0	0	0	5	100
4	20	74	6	22	1	4	0	0	27	100
5	18	82	3	14	0	0	1	4	22	100
6	15	79	4	21	0	0	0	0	19	100
7	0	0	0	0	0	0	0	0	0	100
8	10	83	1	8	0	0	0	0	12	100
9	8	80	2	20	0	0	0	0	10	100
10	11	92	1	8	0	0	0	0	12	100
11	5	83	1	17	0	0	0	0	6	100
Total	94	78	21	18	3	2	2	2	120	100

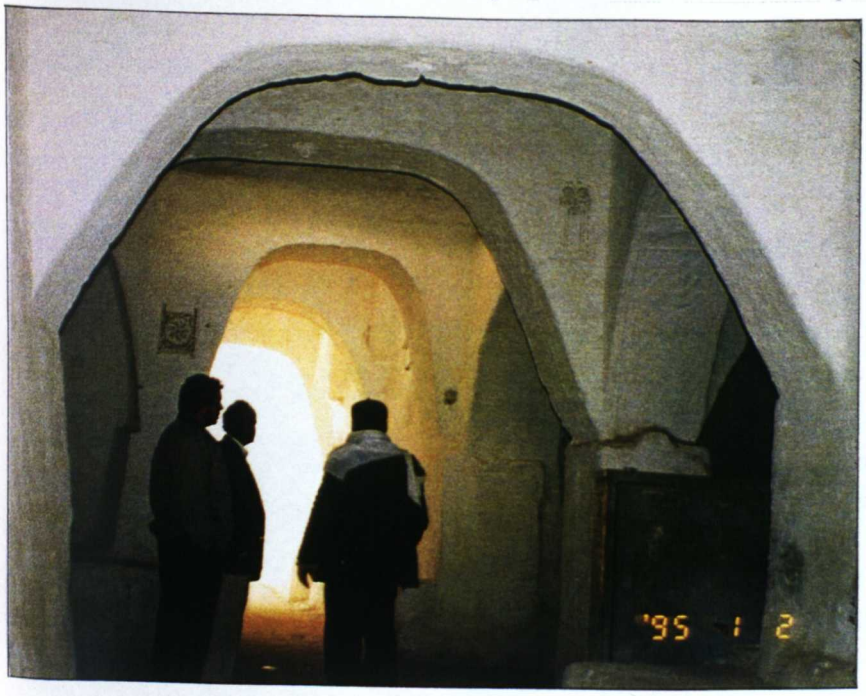
Source: Fieldwork, 1995

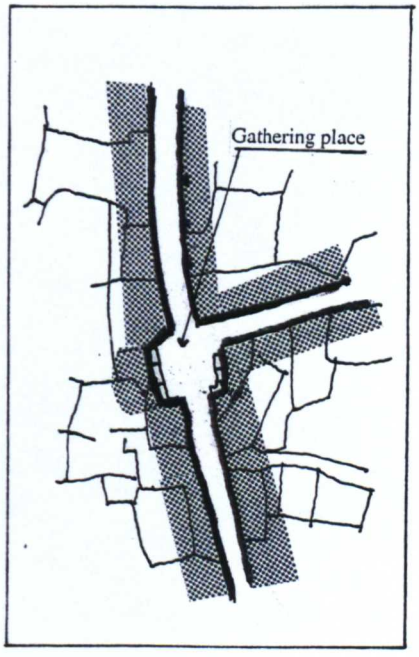
6.3.3 Privacy needs

According to the informal discussion, which took place during the two periods of interviewing, it was pointed out that in the traditional residential areas privacy was highly respected. People in previous residential areas spent most of their time outdoors socialising, as suitable meeting places were available. "....granting of urban space to a group yields one of the key characteristics of Islamic Cities" (Abu-Lughod, 1980:9). For instance, observation revealed that there is a hierarchy of streets through the neighbourhoods; in each neighbourhood there are major and minor ones, long streets and short ones with dead ends. The main streets are two to three meters wide and are bordered by stone benches attached to the walls of the houses, in order to enable the residents to sit and meet each other, particularly during hot periods. Usually these streets open onto squares which may be covered or open. Streets in traditional Ghadames were not only a means for movement but were also used as meeting places for people of all ages. The

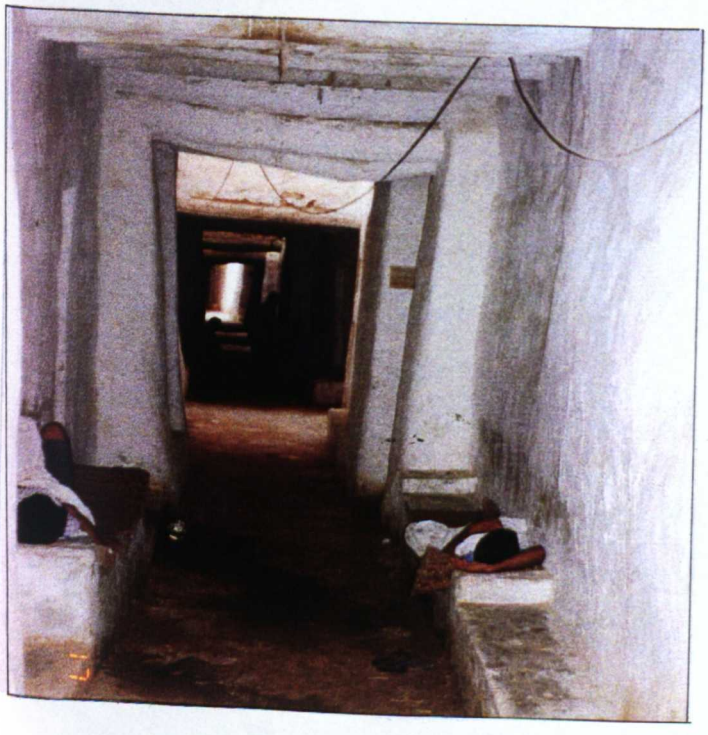
meeting places of the younger age group were far from the other meeting places, because younger people are more energetic and can walk greater distances and tend to talk more noisily. Middle aged people hold their meetings near the entrances of the town, except the entrance leading to the main mosque, and the older age group were meeting near the mosque. This means that people respected each other and this respect made the traditional residential area more comfortable in terms of privacy.

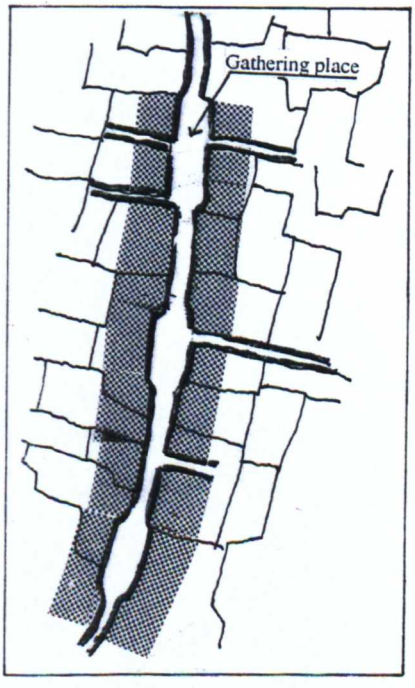
Observation revealed that the spatial pattern of the traditional residential area was related to the Ghadamesian social organisation. Squares and streets provided a social area where problems were solved, deals were made and social ties were maintained (figure 6.8). The requirements of private tribe and public activities played a great role in the shaping of the urban space. Consequently, the separation of spaces into a hierarchy from totally public to completely private can be clearly seen. Inside the residential area there are seven neighbourhoods or "Tribes" as they were called locally. This social relation, as mentioned earlier, played the main role in dividing and shaping the residential area. Every tribe has its own neighbourhood. In addition, those neighbourhoods were close to each other, with no physical boundaries between them. Foreign visitors were not aware of the boundaries.





A) Privacy in the square level





B) Privacy in the street level

Figure 6.8: Types of streets and squares in terms of privacy

Source: Fieldwork, 1995

The statistical analysis shows that the residents' satisfaction with the level of privacy is very high. In the sample, 87 per cent of people rated their neighbourhoods' privacy level favourably because outside space around their houses is designed in such a way that allows people the freedom to gather when they want to in special places designed for social activities, taking into consideration users and respecting nearby houses' privacy. Ten per cent were neutral, and only 3 per cent rated it unfavourably (figure 6.9). However, from the cross tabulation analysis and Chi-square test, the respondents' level of satisfaction was shown to be strongly influenced by their age group, the young age group were recorded as being less satisfied than the other age groups ($P < 0.025$) (appendix 4).

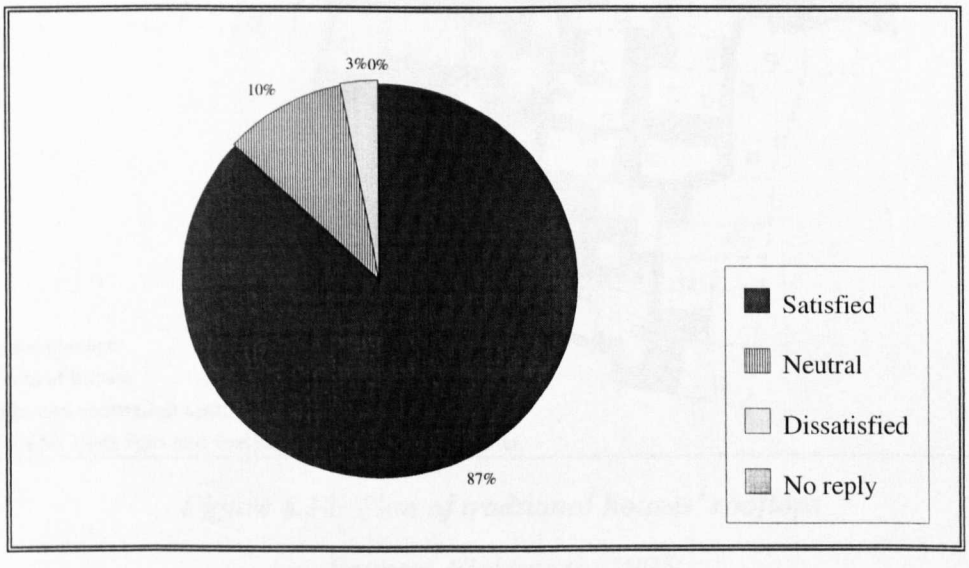


Figure 6.9: Respondents' degree of satisfaction with their traditional neighbourhood in terms of privacy

Source: Fieldwork, 1995

Furthermore, "in Islam, maximum segregation between the sexes is required outside the kin group, i.e., vis a vis strangers" (Abu-Lughod, 1980:8). Indeed the designers of the Ghadames traditional area paid attention to the problem of segregation between the male

and female by creating roof terraces and upper passages for women to meet, sit and walk in complete visual and acoustic privacy from men (figure 6.10).

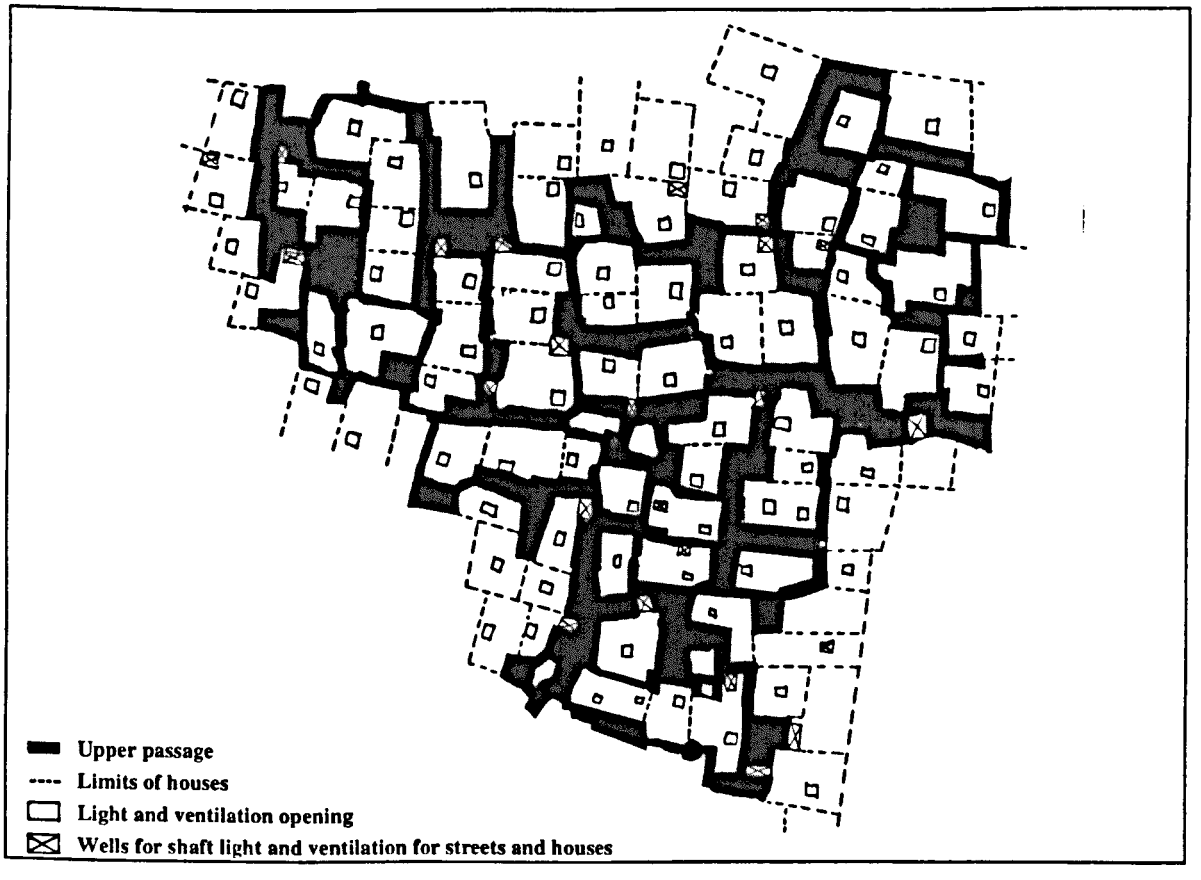


Figure 6.10: Plan of tradtional houses' rooftops

Source: Fieldwork, 1995

6.3.4 Religious facilities

Since the begining of the religion of Islam, the mosque had been the most important element of the Muslim cities. It evolved as the focal point of these cities and has become the major socio-cultural centre at neighbourhood and settlement level. The daily communal prayer provides the worshipper with spiritual strength and brotherhood with his follow Muslims.

> "The mosque should be considered the major dominant element in the designing of residential areas or towns. As a symbol of religion and the place where prayers are offered and as a centre of daily life of Islamic communities, it should be given the utmost consideration and highest priority in the various planning projects" (Ibrahim, 1979:66)

In traditional cities like Ghadames, the mosque played a major part in the social organisation. Schools, shops and other different types of social activities were linked to the mosque. The impact of religion or worship can be seen clearly in the formation of the Ghadames traditional residential area. The mosque is the focal point of and the dominant element in, the structure of a traditional residential area (figure 6.11). Traditional Ghadames, as mentioned earlier, has large numbers of mosques, most of which are within easy walking distance of the worshippers. More than 23 mosques exist and usually each neighbourhood has its own mosque, sometimes more than one. Observation revealed that such mosques were not only used for daily prayer, but also for several other purposes such as schools for learning the Koran, and studying the basic principles of the religion. "These mosques still in existence, still communicating themselves to the new generation are a witness to the idea of Islam that has been kindled in these lands for numerous generations" (Piccioli, 1935:213). Moreover, the mosque still functions as the main gathering place for the neighbourhoods, respondents in the survey felt that the mosques were more functional socially in Ghadames.

Statistical analysis showed that the majority of respondents were satisfied with the religious facilities. 92 per cent of the residents were satisfied, 4 per cent were neutral, and only 4 per cent were dissatisfied with the religious facilities in their neighbourhoods (figure 6.12). Respondents who were asked to give their opinion about the reason for satisfaction said that mosques in their traditional neighbourhoods were functional socially and agreed that mosques still act as the focal point and gathering place of their neighbourhoods, even contemporary neighbourhoods located outside the traditional area.

Sources of dissatisfaction with mosques are related to the crowded conditions of some of them, particularly those in the central areas or on Fridays. However, when comparing the level of satisfaction according to the residents' age groups by cross tabulation analysis and Chi-square testing, the level of satisfaction was found to be strongly related to age group ($P < 0.001$). The youngest age group is less satisfied than the other age groups as shown in appendix 4, because young age groups are less religious than the other age groups.

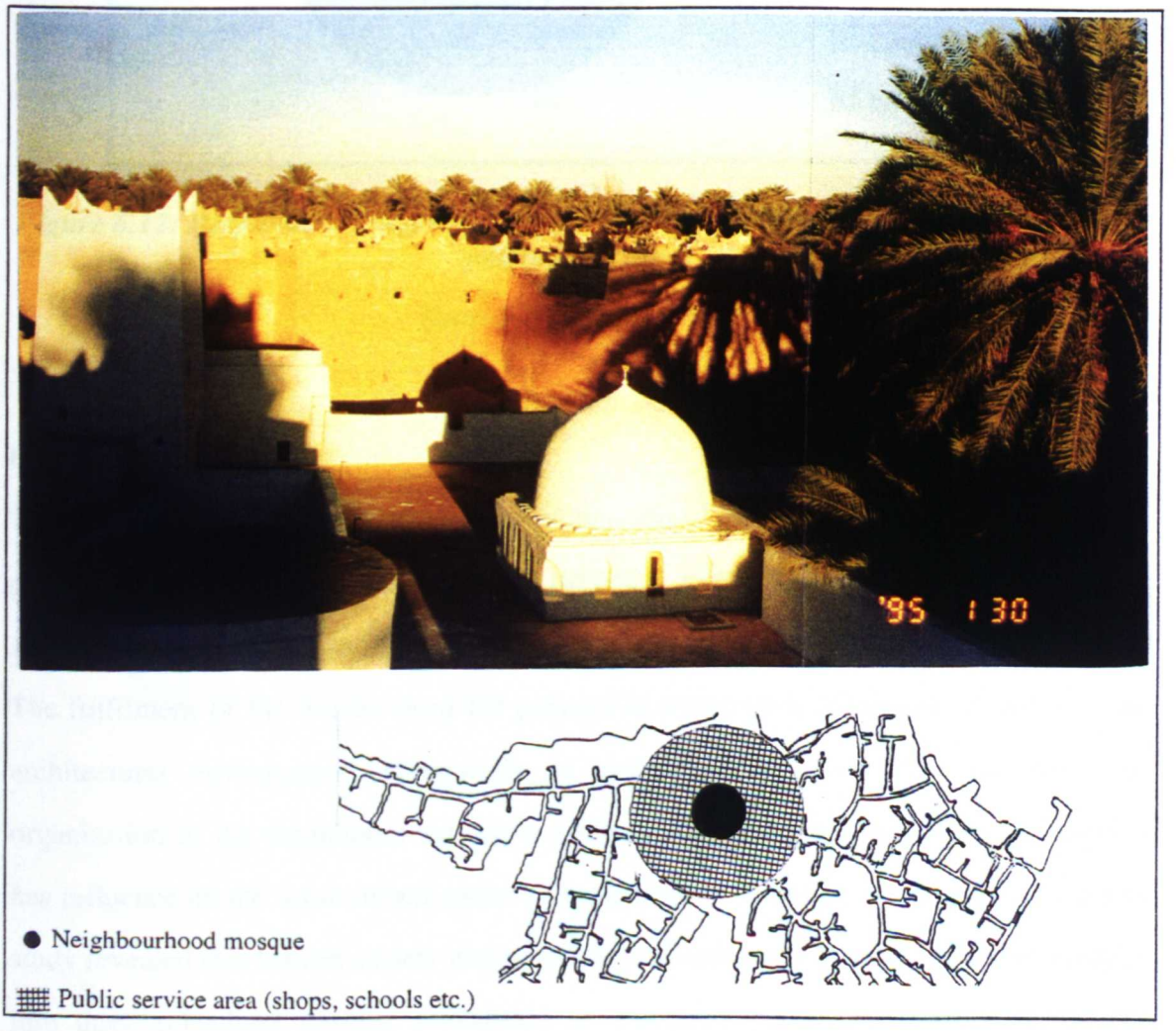


Figure 6.11: Mosque's dominant structure in the traditional residential area

Source: Fieldwork, 1995

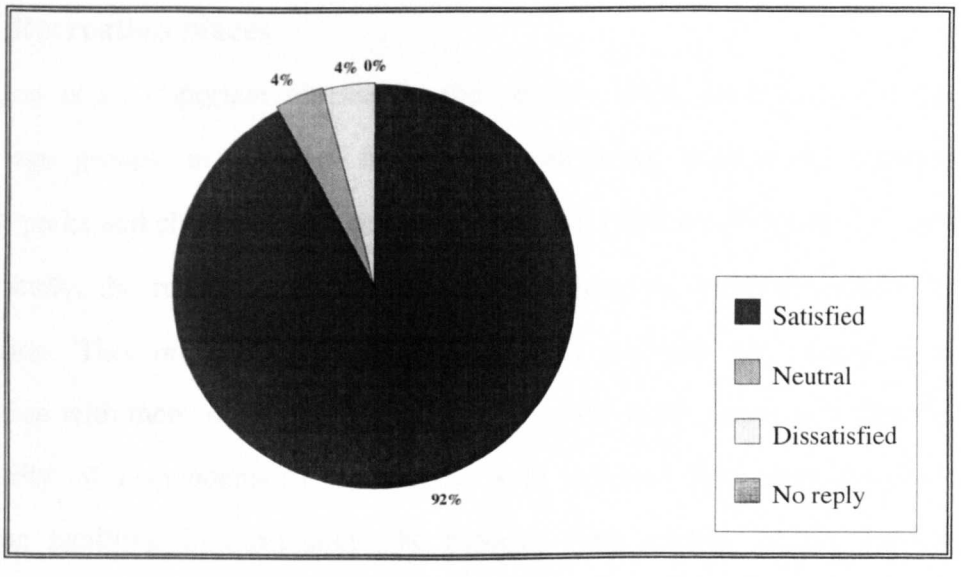


Figure 6.12: Respondents' degree of satisfaction with their neighbourhood in terms of religious facilities

Source: Fieldwork, 1995

6.3.5 Prestige Needs

The need for prestige or self-esteem involves the desire for self-respect, a sense of personal worth, and the esteem of another (Maslow, 1970). Prestige is an important value and planners and architects must take it into account when designing any residential area. The fulfilment of the human need for prestige is achieved in a number of ways in the architectural environment, particularly at neighbourhood level. For example, the organisation of the neighbourhood layout such as availability and suitability of services has influence on the sense of self-esteem. Discussions with people and key figures in this study revealed that Libyan society and particularly Ghadames residents, classified prestige into three subsidiary desires: availability of recreation places, neighbours' status and neighbourhood up-keep.

6.3.5.1 Recreation places

Recreation is an important element in the people's lives, particularly the young and middle age groups, in terms of health and well-being. Recreation facilities include gardens, parks and children's play grounds, baths and other public spaces for ceremonies. In this study, the recreation factor was found to have an important effect on overall satisfaction. This reflects the fact that recreation facilities are central to residents' satisfaction with their environment, particularly in the harsh desert area like Ghadames. A majority of respondents, 77 per cent, were satisfied with their neighbourhood's recreation facilities. Ten per cent who reported were neutral, 12 per cent expressed dissatisfaction and one per cent did not reply (figure 6.13).

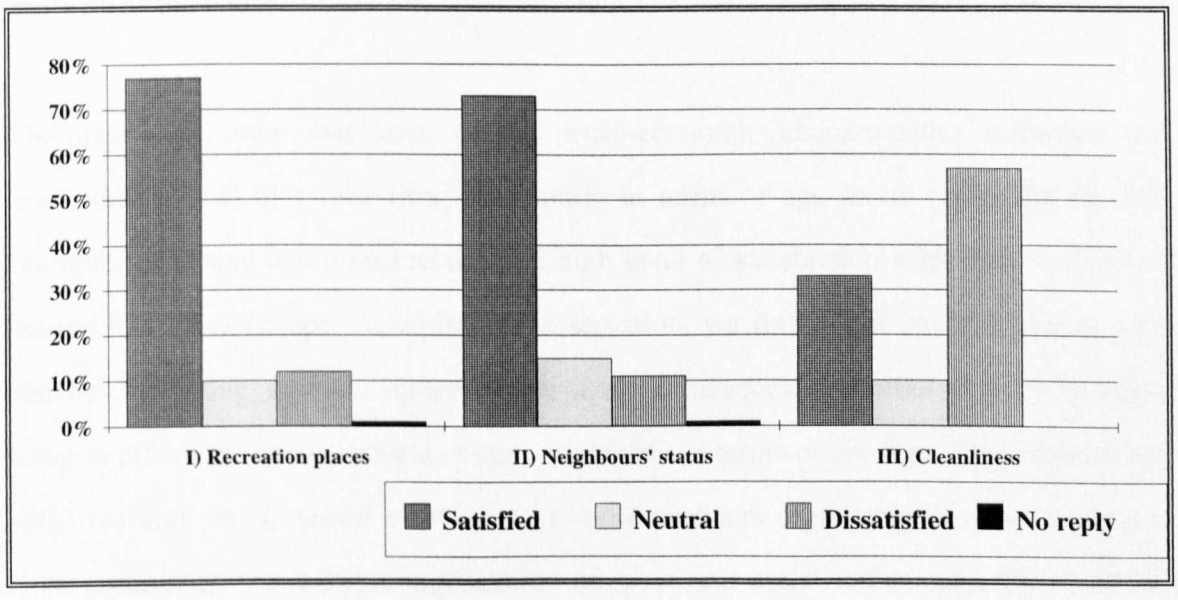


Figure 6.13: Respondents' degree of satisfaction with their neighbourhood in terms of prestige

Source: Fieldwork, 1995

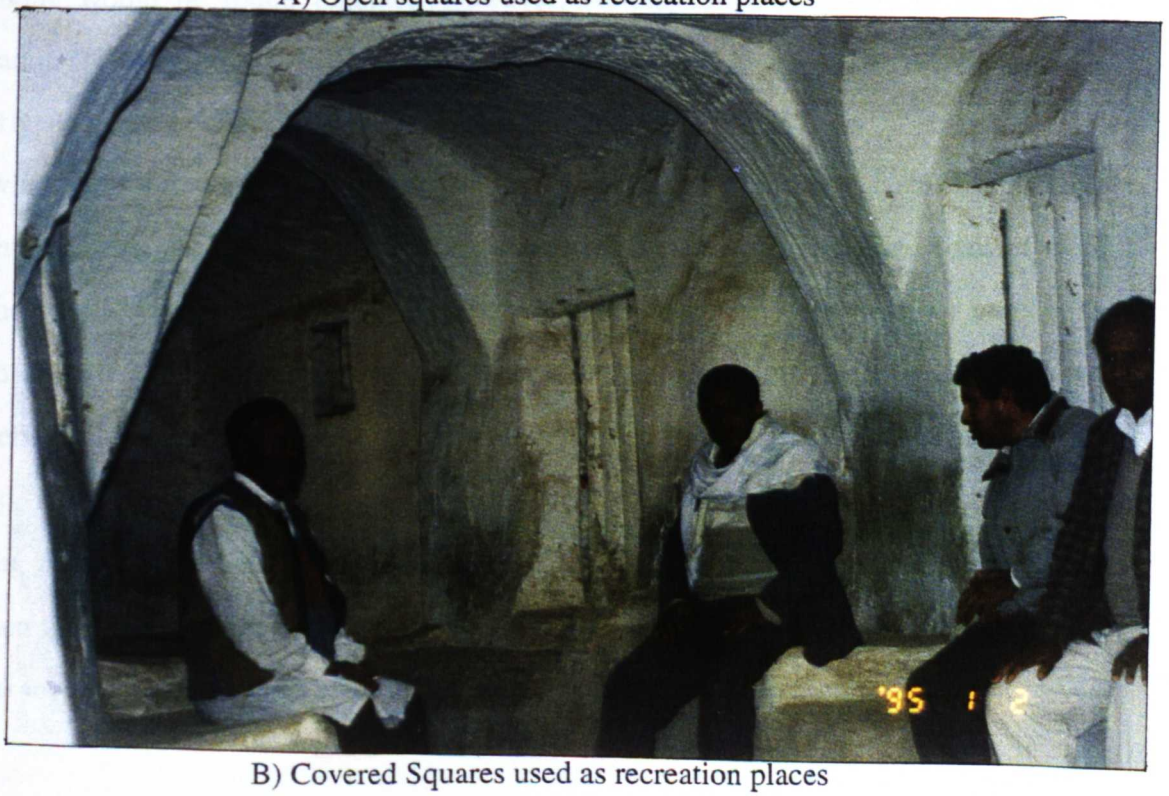
The people being interviewed about the reasons for their satisfaction said that recreation facilities in the traditional area of Ghadames, particularly at the neighbourhood level, received more attention from the house builder. There are many prestigious covered and

open recreation places; squares, streets, gardens and parks which are easily accessible to the majority of young and middle age groups, as well as the places for the old people where they have their celebrations, meet or play cards and chat in complete privacy from others (figure 6.14).

The water running in channels underneath the buildings of Ghadames makes a pleasant and refreshing sound. Sometimes it can be seen flowing and sparkling in the sun through conduits beside the roads. It is a source of recreation in the midst of the desert. Most of the people, however, made use of the public bath or 'hammam' (located in the neighbourhood mosque) which was used as a place of recreation and relaxation, of gossip and social interchange, offering many of the inhabitants an opportunity to escape from the confines of the house.

The data also show that none of the socio-economic characteristics influence the respondent's level of satisfaction, particularly in terms of age group (appendix 6). For example the young age group recorded a high level of satisfaction with their traditional houses like other groups. According to observation, we found that covered streets with benches for sitting, covered squares, open squares, mosques, and other physical features serve to affirm the socio-cultural system particulrly in terms of prestige. These places are still used and people spend most of their time outdoors socialising because there is a close connection between the organisation of space and users' self-esteem. This is proof that the design of recreational facilities is in accordance with the reputation of the people of Ghadames, who, because of the harsh climate, cannot seek recreation and social activities outside their residential area.

A) Open squares used as recreation places



B) Covered Squares used as recreation places

Figure 6.14: Recreation places in the traditional neighbourhood level

Source: Fieldwork, 1995

6.3.5.2 Neighbours' status

"People who inhabit the same geographic place wish to have social interaction with the more esteemed residents. At the same time, these esteemed people feel the same attraction towards their peers of high prestige" (Goode, 1978:93). The question is how can we satisfy people's desire to have prestige by providing them with neighbourhoods which will enable them to have their neighbours' respect. The most recent studies such as Moslow (1970) and Blowers, (1973) emphasise that social categories are the factors which most affect people's prestige, which means people who have the same social ranking would be found together. However, Antoniou, (1981:21-27) in his study of Islamic Cities noted that "differences between income group are not so much expressed. Early nomadic social values were introduced into city life by way of different tribes having their own neighbourhoods or quarters". Indeed the tribal system completely controlled the neighbours' status, the similarity in social class, age group, place of work, education level and annual income and this had no impact on users' level of satisfaction and did not influence their choice of neighbourhood. In addition, according to informal interviews, it was pointed out that the previous residential area was structured around first, the nuclear family, then the extended family, the sub-clan, the clan sub-tribe and then, at the top of the hierarchy, the tribe. This social structure was taken into account when the traditional residential area was built and for that reason Ghadames was divided into seven neighbourhoods to avoid the problem of status between respondents.

Findings show that 73 per cent of the residents were satisfied with their neighbourhood in terms of neighbours' status, because their social organisation increased their self-esteem and esteem to each other. For example, people still pay and feel, more respect for older than for younger people. 15 per cent were neutral, 11 per cent were dissatisfied and 1 per cent did not reply (figure 6.13). Respondents were asked about reasons for satisfaction

and replied that residents, before they built their houses, were given the opportunity to choose their neighbours even if they came from the same tribe, particularly in terms of behaviour.

None of the respondents' demographic characteristics had any statistically significant influence except age groups where a high level of satisfaction was recorded. (appendix 7).

6.3.5.3 Cleanliness and maintenance

Up-keep and maintenance levels are a strong influence on residents' satisfaction with their neighbourhoods in terms of prestige. The analysis of the residents' satisfaction responses reflects the quality of the general cleanliness and maintenance in the traditional residential area which includes streets, public areas, garbage collection, and sewage system. As many as 57 per cent of respondents in the sample were dissatisfied with their neighbourhood's cleanliness and maintenance levels, 10 per cent expressed no opinion, and 33 per cent reported their satisfaction (figure 6.13). Residents were unhappy with the cleanliness and maintenance of the traditional residential areas because the most beautiful green areas, which people still used, were not cleaned regularly, houses let without maintenance and there was a poor sewage system. Moreover, cross tabulation analysis and Chi-square testing shows that users' level of satisfaction was highly influenced by the age group ($P< 0.025$). The younger age group, those between 20-30 years, recorded 100 per cent dissatisfaction with their neighbourhood in terms of cleanliness. (table 6.6).

Observation revealed that the traditional areas have been spoilt because people have used them for dumping garbage and for keeping animals. Since people have moved away from these areas, there has been no effort made to protect the traditional houses against criminals and vandals. It is sometimes difficult to find out exactly where a particular

person comes from, as he may be embarrassed about the squalor of his neighbourhood and aware that much needs to be done to improve it. Such a person is deeply conscious that his community's prestige is affected by the lack of cleanliness and good maintenance which is in contrast to the immaculate condition of his former traditional neighbourhood Piccioli in 1935 visited Ghadames and noted that walking through the streets of the traditional neighbourhood was like treading on a carpet because it was so clean and there was no litter, damage, or vandalism and people took a pride in their neighbourhood. The local authority in charge of the cleanliness and maintenance of the traditional area should have the responsibility not only for the maintenance of the buildings but also for removing the rubbish.

Table 6.6: Cross table of age of respondents and their feeling about their traditional neighbourhoods in terms of cleanliness

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	0	0	3	100	0	0	3	100
31-40	22	45	5	10	22	45	0	0	49	100
41-50	15	34	4	9	25	57	0	0	44	100
51-60	0	0	1	20	4	80	0	0	5	100
61-70	3	23	1	8	9	69	0	0	13	100
Over 70	0	0	1	17	5	83	0	0	6	100
Total	40	33	12	10	68	57	0	0	120	100

Source: The fieldwork, 1995

6.4 Users' Evaluation of their Traditional Housing

As mentioned earlier, Ghadames' traditional residential areas generally consist of 2,120 housing units. These are compact units, three stories high, and surrounded by thick palm trees, which predominate beautifully in the oasis (figure 6.16). The majority of the houses in the study sample were found to be owner occupied. To understand the necessity for creating a better residential social environment in Libya, it is necessary to understand traditional housing conditions in terms of socio-cultural responses. This section examines in depth the users' satisfaction with their traditional housing.

Figure 6.15: Ghadamesian Traditional House Form

Source: Fieldwork, 1995

6.4.1 Users' opinion about the choice of the dwelling

Residents were asked to indicate their opinion about their previous houses in terms of choice. Five questions were asked to examine users' feeling about their traditional dwelling, to discover which components of the house are relevant to the respondent's choice, and then whether they are satisfied or dissatisfied with it.

6.4.1.1 Dwelling location

When asked about their level of satisfaction with their dwellings' location in terms of distance to schools, mosques, place of employment and other public services, the majority, 80 per cent, were found to be satisfied, 9 per cent reported no opinion, and only 11 per cent were dissatisfied (figure 6.16). It is very clear that residents have a high degree of satisfaction with their houses' location. During discussion with respondents, in order to interpret residents' satisfaction with the choice of the previous dwelling, it was pointed out that in previous times people had been given the opportunity to choose their houses' location. In the past Ghadames authority involved their people in the responsibility and decision making particularly in terms of the allocation and design process of their dwellings (Hassan, 1982). "All members of the community participated in the construction of the houses" (Been Swessi, 1993:15). Three types of meeting were carried out to select the dwelling location; at the first household meeting the users gave their opinion about the choice of location, at the second neighbourhood (El-mahla secretary) meeting they recorded their opinion about the household choice. The third meeting was one with the city secretary and was the last stage in choosing the home location which took into consideration the family opinion and El-mahala opinion.

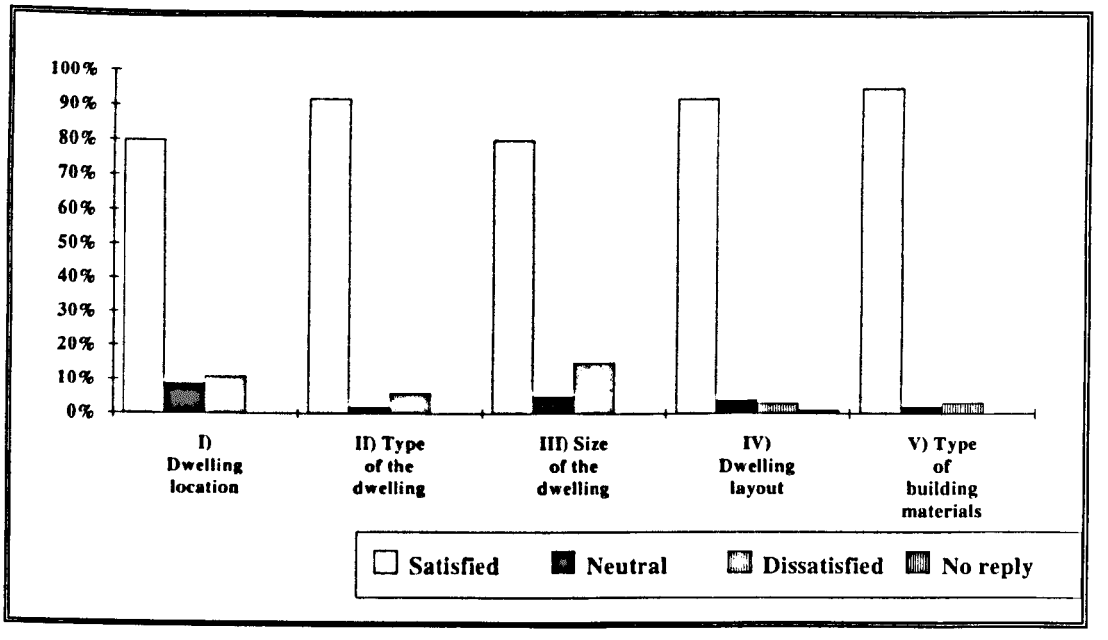
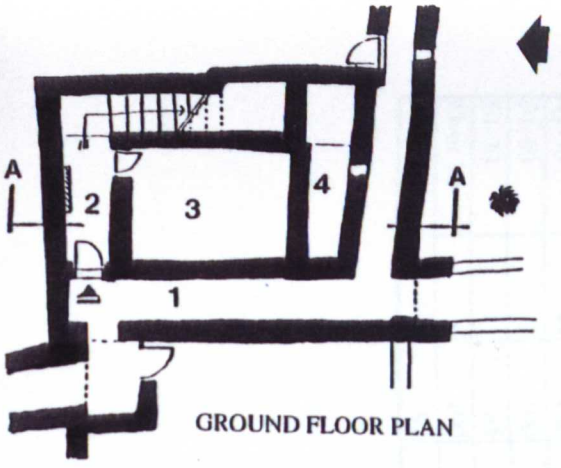


Figure 6.16: Residents feeling about their traditional house in terms of choice

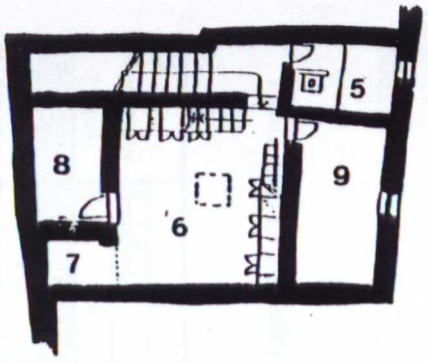
Source: Fieldwork, 1995

6.4.1.2 Type of dwelling

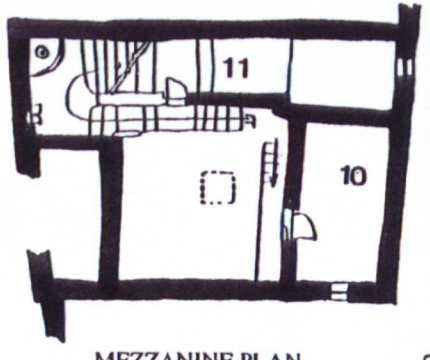
Houses in the traditional residential area consist of one type of compact dwelling units, three stories high (figure 6.17). However, these types of houses are best in utilitarian structures serving the highly specialised needs of environmental control, industry and agriculture. Although these types of buildings are constructed within the formal limitations of local building traditions, their special requirements have sometimes led to spectacular architectural expression. When respondents were asked what they thought about the choice of the dwelling type, more than two thirds of respondents, 92 per cent, said the dwelling type was satisfactory, whereas 3 per cent expressed no opinion, and only 5 per cent were dissatisfed with the dwelling type (figure 6.16). A discussion was held with the respondents about the reasons for their satisfaction with the houses' type and they pointed out that Ghadamesian people were very proud of the traditional house's type,



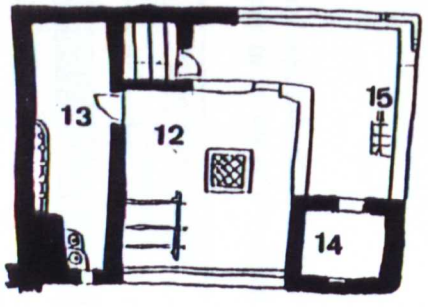
GROUND FLOOR PLAN



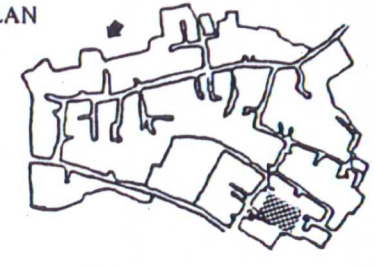
FIRST FLOOR PLAN



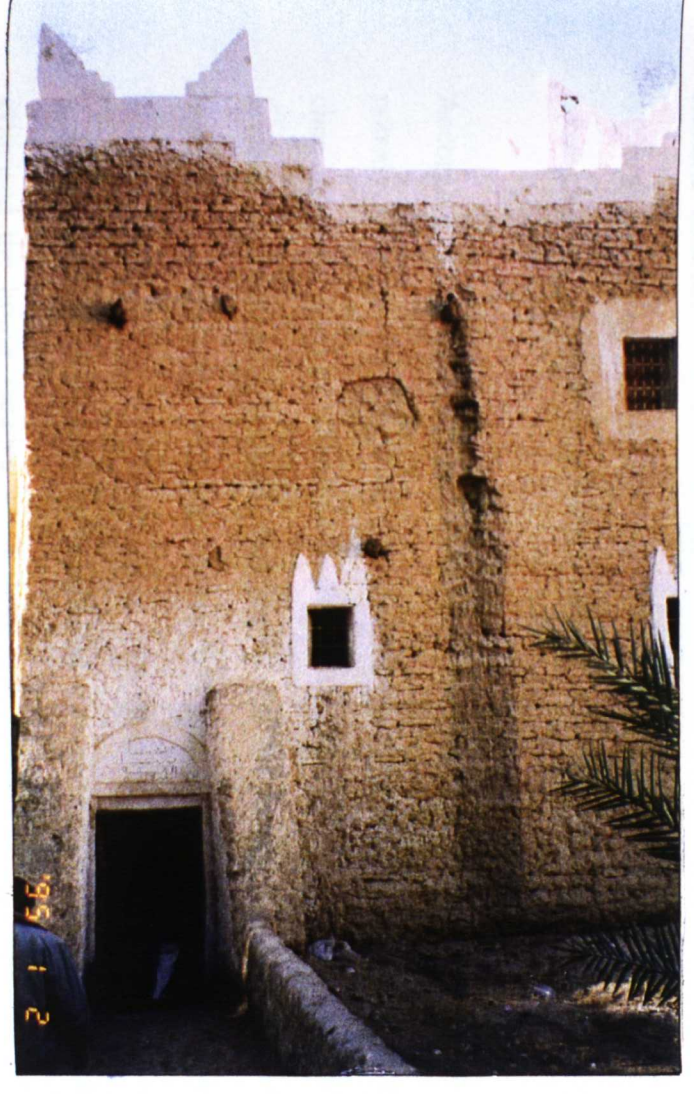
MEZZANINE PLAN



SECOND FLOOR PLAN



SITE PLAN



1-Semi private street
2- Entrance corridor
3- Store room
4- Latrine pit
5- Latrine
6- Guest room
7- Kubba
8- Children's room (girls)
9- Master room
10- Children's room (boys)
11- Store room
12- Roofs terrace
13- Kitchen room
14- Children's sleeping room during summer time
15- Steps leading to neighbour house's roof
Sample location

0 5m

Figure 6.17: The dwelling unit type in the traditional residential area

Source: Fieldwork, 1995

because it successfully represents their socio-cultural values and is very suitable for their climatic conditions. It is clear that a visitor to Ghadames can tell from the housing typology the social characteristics of Ghadamesian people without asking and see how the house clearly responded to the surroundings, particularly the climatic conditions.

According to the cross tabulation analysis, the most interesting thing to notice was that nobody from the old age group complained about the dwelling type. The demographic characteristics, such as income, occupation, size of the household and age influence the level of satisfaction. Chi-square test shows that the level of satisfaction has a strongly significant relationship with age group ($P< 0.005$) and appeared to have a weakly significant relationship with the other demographic characteristics. The younger age groups (under 41 years) were less satisfied with their type of dwelling (table 6.7) and criticised the house facades when there was no distinction made between individual houses.

Table 6.7: Cross table of age of repondents and their feeling about their traditional houses in terms of dwelling type.

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	43	88	2	4	4	8	0	0	49	100
41-50	44	100	0	0	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	11	85	1	8	1	7	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	110	92	3	3	7	5	0	0	120	100

Source: Fieldwork, 1995

6.4.1.3 Size of the dwelling

Ghadamesian houses by tradition are small and compact and occupy only a small area (table 6.8). However, even though they are very small, they successfully meet their users' social life needs. It is obvious from figure 6.16 that the respondents are extremely satisfied with their dwelling size, 80 per cent recorded their satisfaction, 5 per cent expressed no opinion and only 15 per cent were dissatisfied. It was most important to know the sources of satisfaction or dissatisfaction. The findings showed that previously people had not only the opportunity to choose the size of the dwelling but they co-operated in planning the dwelling design by giving their opinion and this strongly affected the level of satisfaction. The shortage of the agricultural land made Ghadamesian people make the best use of available space and increase their houses' size vertically. The traditional furniture is light and does not occupy much space. It can be easily removed at any time to make room for other uses of the same space. Space can be used fexibly in the absence of cumbersome furniture (tables, chairs, cupboards and so on). In addition, the economic structure of the society, has led people to experiment with certain types of materials and methods of construction; the level of technology has influenced the dwelling size. For example, the palm tree, which is the main vegetation in the oasis, was a source of construction material and provided the beams for roofing and flooring rooms which meant that the span of rooms was determined by the length of the palm trees' trunks.

Two characteristics of the guest room can be observed in the case study in particular and the Islamic culture in general. Although the houses are small, the Ghadamesian people pay a lot of attention to the guest room and make it the loftiest (of double height) and largest room in the house (table 6.8). However, the young age groups who reported dissatisfaction, described their traditional houses as not spacious (appendix 8) because

they cannot accommodate modern furniture and other house equipment such as kitchen and bathroom equipment.

Tabble 6.8: Size of traditional dwelling unit

Components	Range of area (Sq. m)
Plot	25-60
Built area	75-160
Guest room	16-23
Bed room	5-12
Kitchen	6-13
Store room	12-20
Latrine	4-6

Source: Fieldwork, 1995

6.4.1.4 Dwelling layout

While rooms in European houses are usually allotted to a specific activity, such as bedrooms or a dining room, the significant divisions in Muslim houses are those of social accessibility, both public and private (Petherbridge, 1978). The Ghadamesian traditional house layout performs an important function as a modifier of users' social life needs rather than other activities. Users' social values have influenced the house layout, for example, the men's guest room tends to be located adjacent to, or directly accessible from, the entrance of the house, so that visitors do not meet or converse with members of the female household and the segregation of women is maintained by creating a separate zone in the upper level. It was very evident that the Ghadamesian traditional houses' respondents were satisfied with the dwelling layout. Respondents were asked about their previous dwelling space arrangement and layout, and what they thought; 92 per cent said that the previous house layout was satisfactory, 4 per cent had no opinion. A small proportion, 3 per cent, said that the arrangement of internal space was unsatisfactory, and

1 per cent made no reply (figure 6.16). However, the younger group criticised the location of the kitchen because it was too far from the living room particularly when food is required for visitor; for that reason they recorded a lower level of satisfaction than the other groups (appendix 9).

A physical survey revealed that Ghadaesian houses are similar in terms of arrangement of rooms, layout and distribution of elements, and sometimes no one can differentiate between these houses. The differences may be shown in an increase in the number of bed rooms or in living room area, particularly in six of the neighbourhoods. However, as mentioned earlier in chapter five, the seventh neighbourhood, Auld Blel, that was built during the second part of the last century, has minor differences in housing design such as no mezzanine floor and there is a bathroom with running water located in the ground floor, but it displays the same housing layout and characteristics as the other six neighbourhoods (figure 6.18 represents samples one and seven layout, see the rest of the samples in appendix 10).

Cross tabulation analysis shows that levels of satisfaction were strongly related to age group rather than other demographic characteristics. It is also obvious from the Chi square test that the respondents' opinion about their houses, in terms of arrangements of internal space, has a significant relation to age group ($P< 0.001$). We found that the younger group (under 41 years) were less satisfied with their housing arrangements than the other groups (appendix 9).

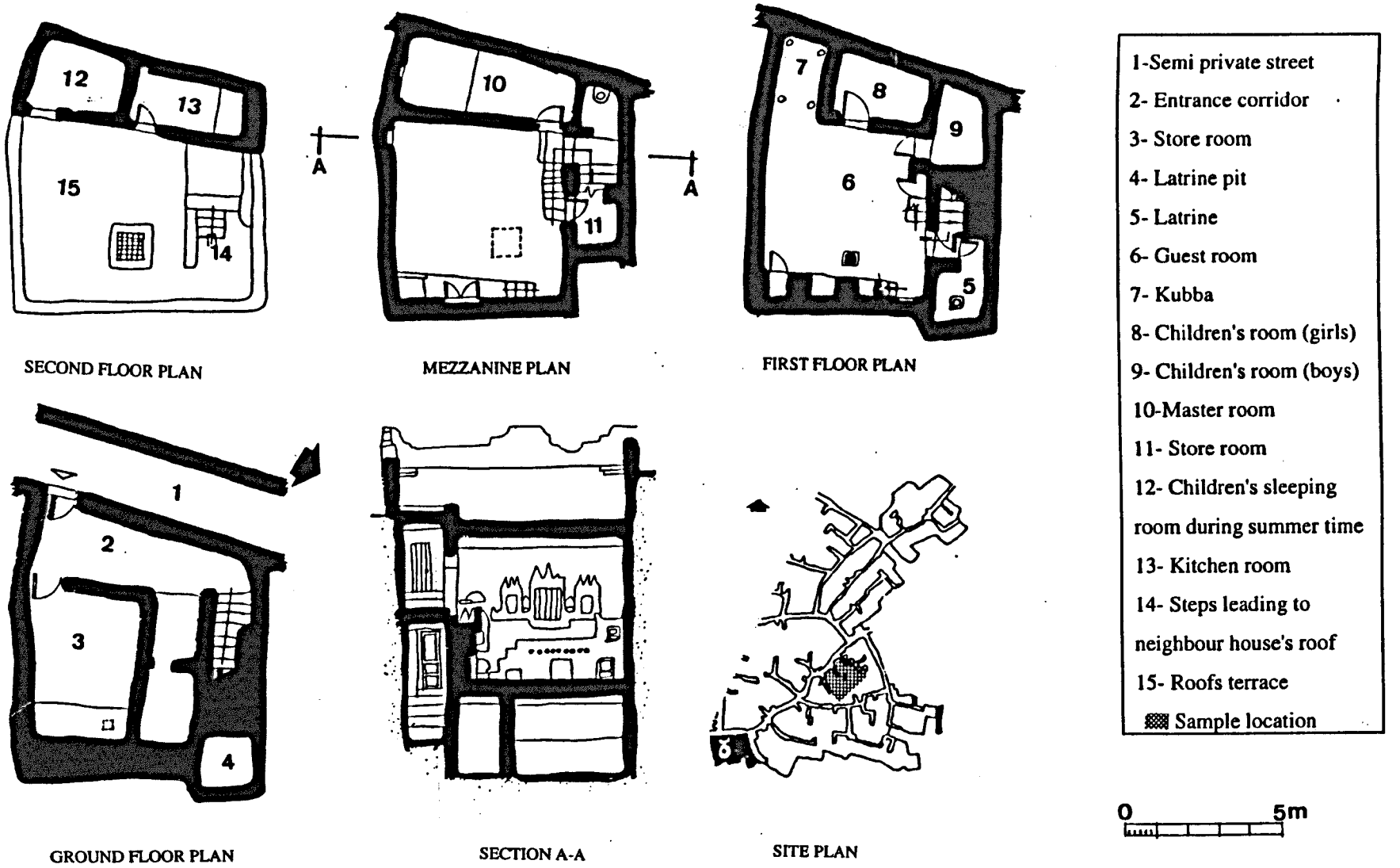


Figure 6.18: Traditional Ghadamesian house laytout in the Tusku, Djarrasan, Mazigh, Tharefra, Tangzin and Giorsan neighbourhoods (cont'd)

Source: Fieldwork, 1995

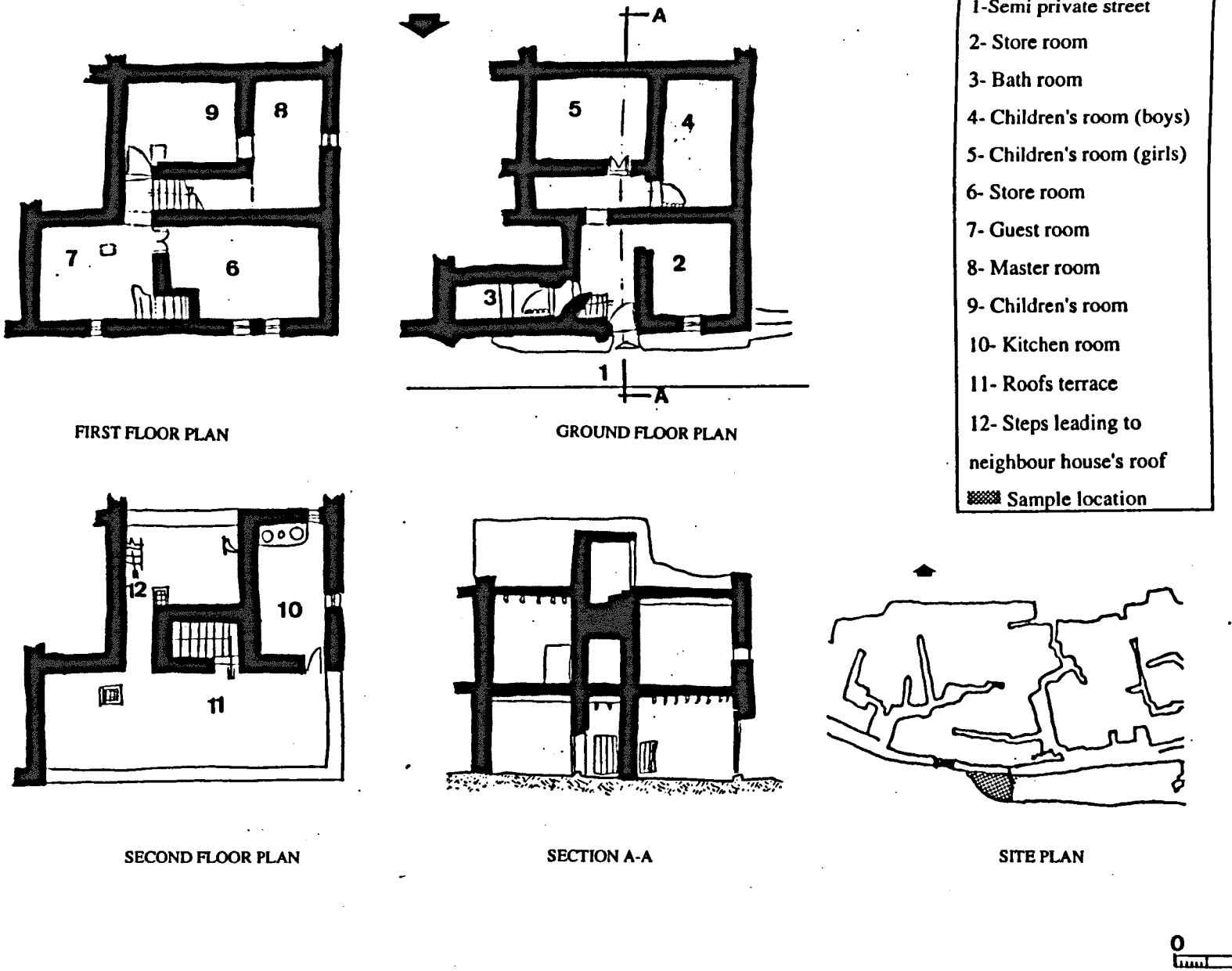


Figure 6.18: Traditional Ghadamesian house laytout in the Aulad Blel neighbourhood.

Source: Fieldwork, 1995

6.4.1.5 Type of building materials

Structural materials used for the traditional houses of Ghadames were largely indigenous (produced locally) until this century. Six very simple building materials, mud, hard lime stone, palm trees trunks, leaf stalks and leaves, gypsum and chopped strain. These types of building materials played their part in producing a pattern of housing which was perfected and stabilised over the centuries only to be upset by the impact of technology in the lives of the present generation. Many factors determine the selection of specific types of materials, the availability, experience in use, and response to the climatic conditions. Figure 6.16 shows that 94 per cent of respondents reported their satisfaction with their dwelling building materials. A small proportion, 2 per cent, expressed no opinion and only 4 per cent reported their dissatisfaction with the type of building materials. They complained about the durability of the type of building materials, which were affected by water and fire.

Discussion with respondents was carried out about the source of satisfaction and this revealed that the traditional building materials in their old form, though they are able to cope with the climate, are certainly successfully in responding to the requirements of the social life. Apart from the fact that they are so cheap to obtain, they create no problems of methods of construction, and there is no shortage of man-power, particularly of a skilled labour force. Thus, there is a need to improve the productivity of the existing methods of construction and the building materials durability.

It is interesting to notice that even the young age group, those between 20-30 years, recorded a high level of stisfaction with their traditional building materials (appendix 11).

6.4.2 Security needs

In architecture, designing for safety is not a new idea. People have long been designing dwellings to protect them from sources of danger. Two things were found to be significant in affecting Ghadamesian people's feeling of security. These are attempted break in and vandalism, which were investigated in order to understand how traditional house design ensures the security of the inmates and prevents vandalism.

6.4.2.1 Attempted Break in

A great majority, 91 per cent, of respondents were happy with the house in terms of security, 7 per cent expressed no opinion, 1 per cent were dissatisfied, and 1 per cent made no reply (figure 6. 19). According to observation and discussion with respondents it was learnt that no preventive measures were found in the traditional houses such as alarm systems, reinforcing of doors or addition of a metal door and so on. The security measures were expressed in design features such as windows located at a high level, and in the location of the main entrance. These features were clearly of a defensive and protective nature. The studies of Newman (1972) on prevention of crime through urban design, are highly regarded among architectural professionals. His study of defensible space promotes the idea that the design of interior and exterior spaces can play an important role in deterring or reducing crime by enhancing residents ability to control their surroundings. This fact is very obvious in Ghadames' traditional houses, the absence of window grilles, shutters and alarms was probably due to the fact that security was provided by the neighbours socially, as they were also members of the same extended household, and physically by adopting an inward looking organisation both at the neighbourhood and house levels. In addition, the more interesting plants and trees around the house were found to contribute positively to a feeling of security and the street system, as previously mentioned, meant that foreigners could not cross the traditional residential area without a guide.

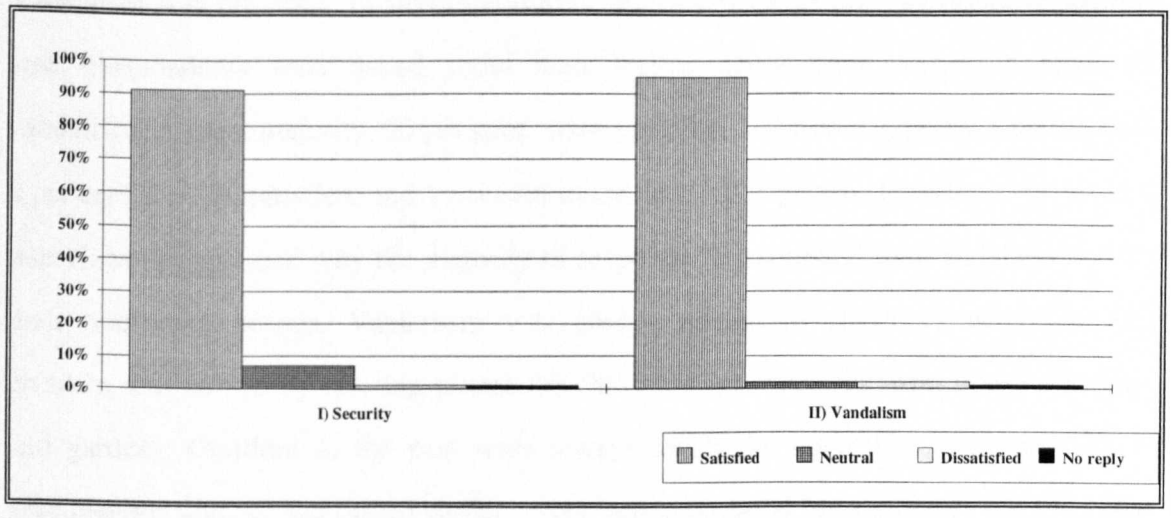


Figure 6.19: Respondents' feeling about their traditional houses in terms of security and vandalism

Source: Fieldwork, 1995

Satisfaction with the housing was found to be strongly related to the users' demographic characteristics. For example, age groups were found to have a great influence on household satisfaction and were significant (P< 0.005) in terms of their houses' security. Table 6.9 shows that the young age group recorded less satisfaction than the middle age and older age groups because they have no experince of the traditional houses and for that reason they have no clear picture.

Table 6. 9 : Cross table of age of respondents and their feeling about their traditional housing in terms of security

Age group	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	39	80	8	16	1	2	1	2	49	100
41-50	44	100	0	0	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	109	91	8	7	2	1	1	1	120	100

Source: Fieldwork, 1995

6.4.2.2 *Vandalism*

Vandalism was not seen or observed during the fieldwork in the traditional residential area. Respondents were asked about their feeling about their houses in terms of vandalism. A great majority, 95 per cent, were satisfied, 2 per cent expressed no opinion, 2 per cent were dissatisfied, and 1 per cent made no reply (figure 6. 19). However, several interviewees explained why the majority of respondents expressed their satisfaction with their traditional houses. Vandalism was always related to children's activities, this problem was solved by creating places for children's activities far from house windows and gardens. Children in the past were always under the control of their mothers or grandparents and, as mentioned earlier, every neighbourhood has its places for activities, particularly for children and that means that the children who play are relatives from one tribe.

As for the influence of socio-economic characteristics on the level of housing satisfaction, the results of our analysis showed an insignificant relationship. Age, household size, income, and occupation variables have a very weak effect on users' levels of satisfaction with their traditional house. For instance, among the cross table and Chi-square test age group was found to have a weak effect on residents' level of satisfaction (appendix 12).

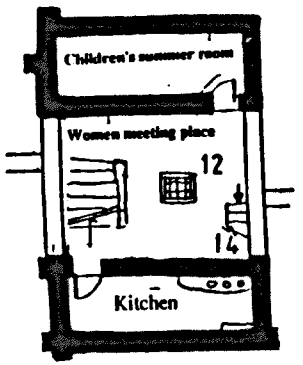
6.4.3 Respondents' opinion about their dwelling in terms of privacy

Islamic law drew on the Kuran and Hadith (saying and practices of the prophet Mohammed (peace upon him) in resolving issues of privacy, the right to it and the respect due it. In the context of dwellings, according to the fieldwork, it was found that household privacy was one of the most important aspects in housing design. Three questions were asked, and interviews and observations were made to examine people's satisfaction with their traditional housing in terms of privacy, so as to understand how

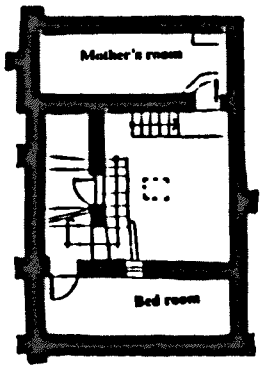
communication and interaction are controlled in order to achieve such a goal. The following section will examine people's feeling about privacy in their traditional houses.

6.4.3.1 Visual privacy between male and female

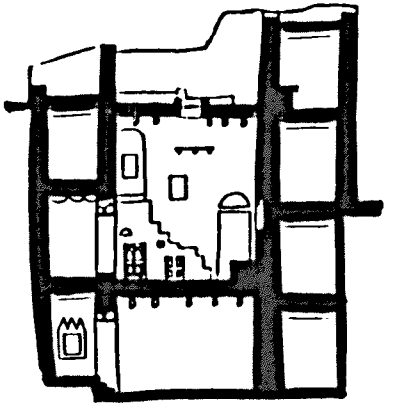
In the context of dwellings and habitats, the main concern of the household was for visual privacy, particularly for shielding female members from the eyes of male strangers (Hakim, 1986). The most fundamental division in the Islamic house in terms of privacy is the separation between male reception areas and the harem, the family sanctum (Petherbridge, 1978). According to discussion with interviewees it was pointed out that people were more concerned about visual privacy inside their houses, particularly in terms of the separation between male visitors and household females. The traditional residential area suggests that the space organisation in some aspects of house design was found to influence user's privacy; this was shown in the arrangement of rooms and spaces such as kitchen, living room, mother's room, children's rooms, and the entrance location. Indeed the space arrangements of the traditional house solved the problem of privacy (figure 6. 20). For instance, the women in the traditional houses moved in complete privacy because the designer created upper terraces and passages for women and the kitchen was located on the roof and this directly solved the problem of privacy, particularly between visitors and household females.



Second floor plan (Women level)

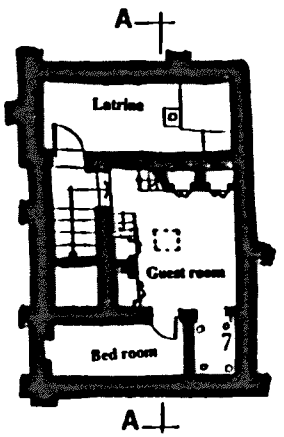


Mezzanine plan (Household level)

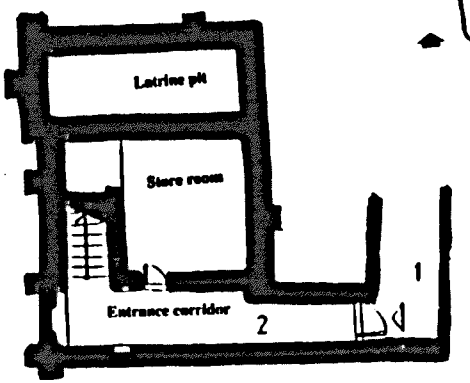


Section A-A

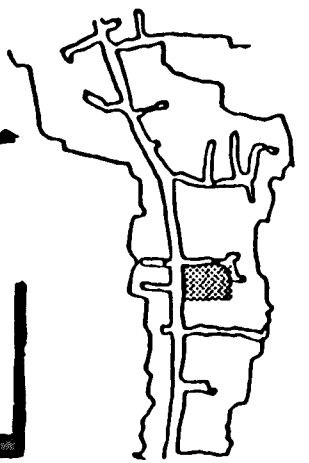
1-Semi private street
2- Entrance corridor
3- Store room
4- Latrine pit
5- Latrine
6- Guest room
7- Kubba
8- Children's room (girls)
9- Master room
10- Children's room (boys)
11- Children's sleeping room during summer time
12- Roofs terrace
13- Kitchen room
14- Steps leading to neighbour house's roof
Sample location



First floor plan (Guest level)



Ground floor plan (street level)



SITE PLAN

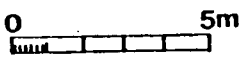


Figure 6.20: Traditional house interior space organisation (Haman's House)

Source: Fieldwork, 1995

Residents were asked during the interviews to assess their feelings about living in their housing settings, by considering their reactions when they had a visitor. It was pointed out that the segregation of women is physically manifested in various forms of barriers, through which women can see but not be seen, that made users in our sample very proud of their housing setting. Statistical analysis, however, provided a clearer picture about respondents' satisfaction with their traditional houses in terms of visual privacy. The results showed that 85 per cent felt generally comfortable about it, 14 per cent expressed no opinion and 1 per cent were dissatisfied (figure 6.21).

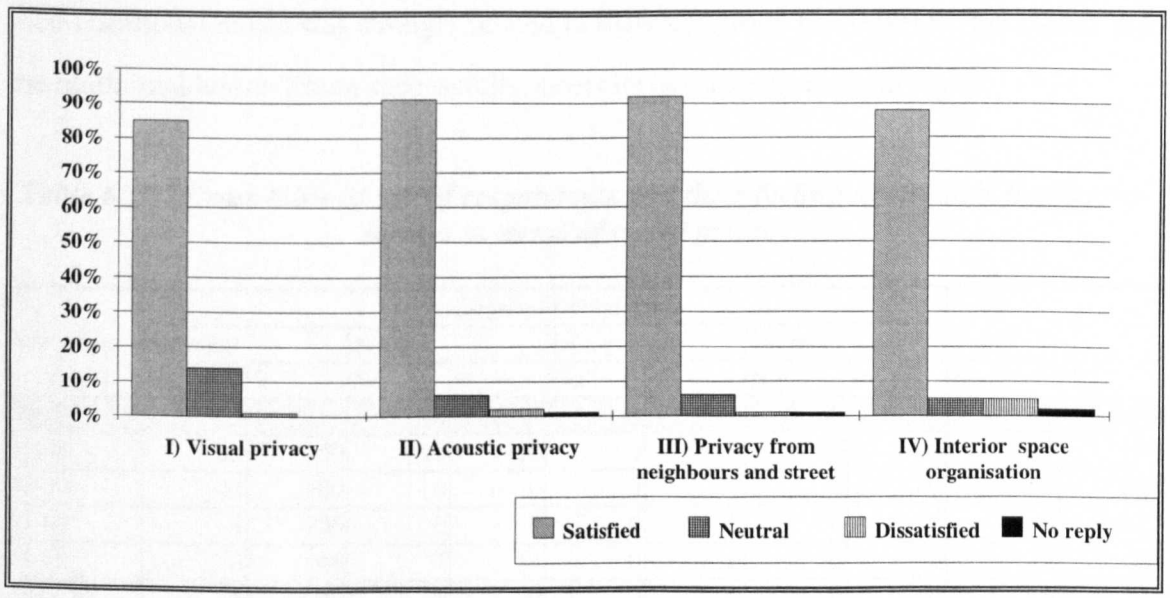


Figure 6.21: Residents' feeling about their traditional house in terms of privacy

Source: Fieldwork, 1995

However, when people were asked about their satisfaction with visual privacy they said that, in the past, household visitors never saw household females, and when women occasionally went out to visit relatives, they did not need to cover themselves with a veil because the women's area was completely segregated from the male area in the house.

Statistical analyses were used in order to test the relationship between respondents' demographic characteristics and their level of satisfaction. Table 6.10 shows that 67 per cent from the age group 20-30 recorded their satisfaction but 33 per cent said they were not satisfied with their houses in terms of visual privacy. 80 per cent of the age group 31-40 were satisfied and only 20 per cent expressed their dissatisfaction. However, 100 per cent of the age group 41-50 were satisfied with their houses in terms of visual privacy, 46 per cent of the age group 51-60 were satisfied but 54 per cent expressed no opinion, and 100 per cent of the age group 61-over 70 were satisfied. The respondents' opinion about their traditional house was strongly related to their age group ($P< 0.001$). That means that the traditional house design successfully meets its users' socio-cultural needs.

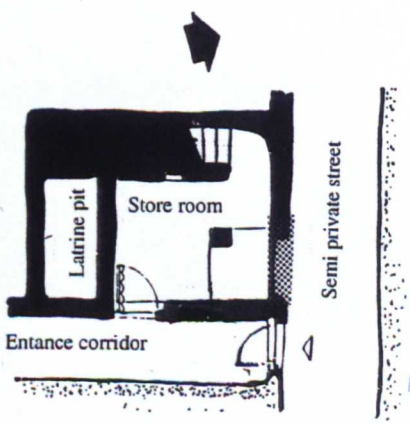
Table 6.10 : Cross table of age of respondents and their feeling about their traditional houses in terms of visual privacy.

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	39	80	10	20	0	0	0	0	49	100
41-50	44	100	0	0	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	6	46	7	54	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	102	85	17	14	1	1	0	0	120	100

Source: Fieldwork, 1995

An interesting feature observed was that there is a niche for an oil lamp which is placed near the main door, and it is considered very important to hang gazelle or antelope horns above the door frame to prevent an evil spirit from entering the house (figure 6.22). When the oil lamp is placed in the middle position, this indicates that the family is willing to receive visitors. If placed to the right, the visitor will know that this is a time of family

happiness when a wedding, or new baby is being celebrated and the visitor will know whether he can meet the head or any member of the household. If the lamp is placed on the left, it is a sign that there is sadness in the house, perhaps a death, and if the light is turned off it is a sign that the household wishes to be left alone. The whitewashed staircase is designed to enable visitors to ascend or descend without being seen by people on the different floor levels. It is built like a piece of sculpture, and leads to the upper floors.



Ground floor plan

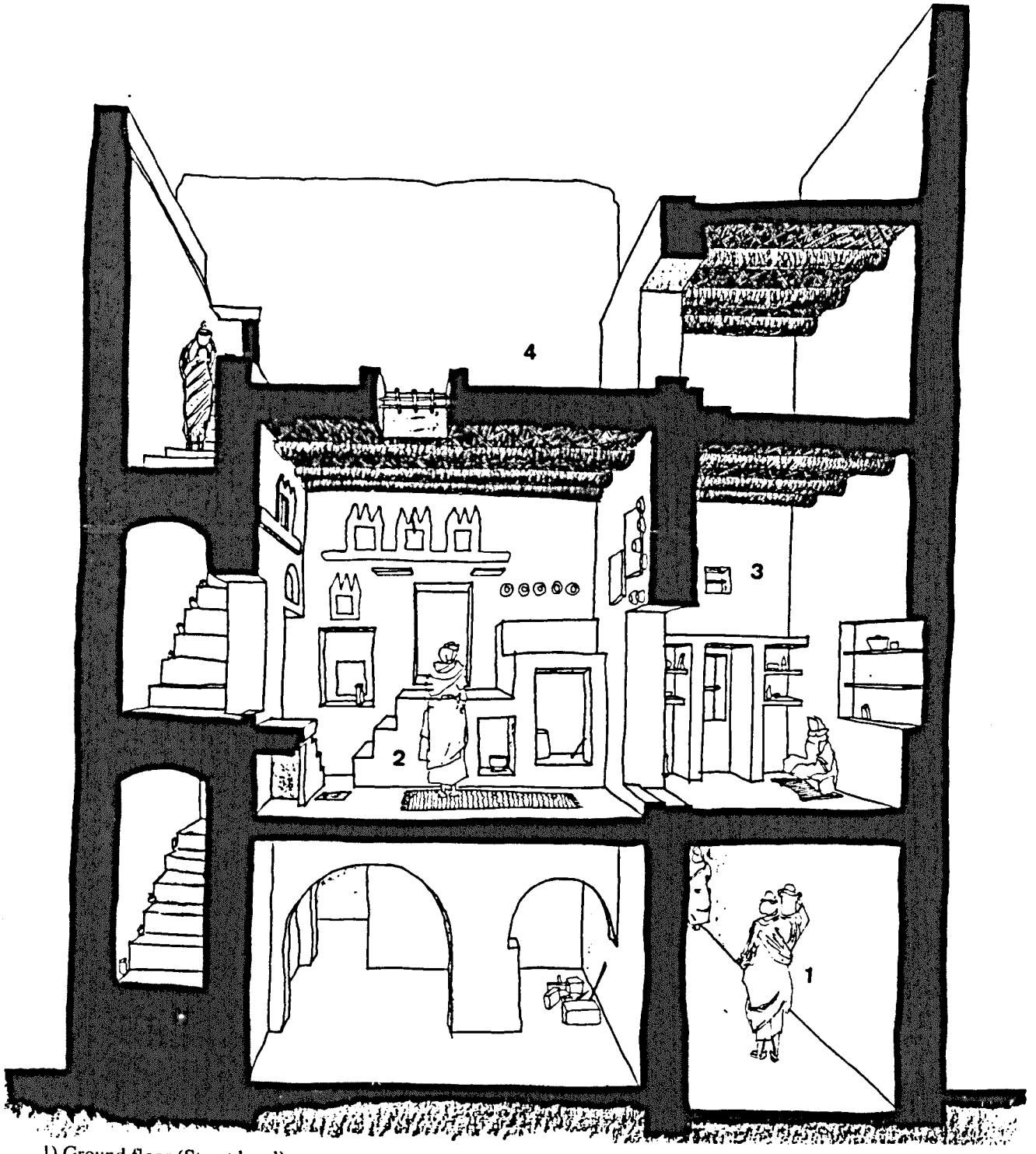
Figure 6.22: Oil lamp location

Source: Fieldwork, 1995

6.4.3.2 Acoustic privacy

Besides the visual privacy of the female household members from the view of male visitors, their acoustic privacy from visitors is also of great concern in Libyan society. The majority of people in the study sample were concerned about acoustic privacy, particularly between male and female as well as children. From the interviews it seemed that the heads of household feel comfortable about the transmission of sound between the quarters occupied by male guests and the household quarters of the traditional house. However, the concern for acoustic privacy was reflected in the physical form of the house where the male visitors' reception area was located on level one and the female space was on the roof (figure 6.23). The analysis of the users' responses indicated that 91 per cent were found to be satisfied, 6 per cent expressed no opinion, only 2 per cent were dissatisfied, and 1 per cent made no reply (figure 6.21). As mentioned previously, the reason for this satisfaction is that the house was well divided into areas serving the particular needs of male visitors and female occupants, and provided the essential acoustical privacy for both groups.

Statistical analysis by cross table and chi-square tests was used to examine the effect of respondents' demographic characteristics on the level of satisfaction with the acoustic privacy within the traditional house. It was found that none of them influenced the levels of satisfaction except the young age group aged 20-30 years who were less satisfied than the other age groups ($P< 0.025$) (appendix 13).



1) Ground floor (Street level)
2) First floor (Visitor level)
3) Mezzanine floor (Household level)
4) Second floor (Women level)

Figure 6.23: Sectional perspective in Ghadamesian House (Hiba House)

Source: Fieldwork, 1995

6.4.3.3 Privacy from neighbours and street (Views & Noise)

Many scholars have attempted to solve the problem of maintaining privacy and preventing neighbours looking into houses from the street or neighbouring houses. Hakim's study (1986) of the Arab Islamic city in Tunisia he noted that the location of doors and windows, which involved air rights, was an important factor, but the right not to be overlooked was primary. External house walls in traditional Islamic cities were built to a height that ensured that the domestic interior could not be overlooked. Any openings on the ground floor were small, grilled and above the line of vision of passers-by (Petherbridge, 1978). These solutions were based on Islamic law and reveal the socio-cultural need for a compatibility between Islamic principles and the architectural environment. In Ghadames there are certain elements and design features which enhance the protection of the household from neighbours, street view and noise, mostly through the restriction of window position, and placement of entrances which are allocated in such a way as to hide the household from the street and neighbours' views. The placing of wells in and between the houses offers a further solution to the problem of ensuring privacy (figure 6.24). In observing the traditional neighbourhoods of Ghadames, one finds that most of the public places such as streets and squares which are covered, also provide the advantage of privacy for the household. In addition the buildings are all at the same height and the rooftops are used only by women and members of the household for sleeping during the night in summer time, this also ensure privacy.

When the residents of the traditional Ghadamesian houses were asked about their satisfaction with their houses, 92 per cent were satisfied, 6 per cent expressed no opinion, 1 per cent recorded their dissatisfaction, and 1 per cent made no reply (figure 6.21). According to discussion with the interviewees, when people were asked why they were satisfied they pointed out that the traditional houses were designed so that none of their windows looked into any other house. To ensure visual privacy the few windows open

into the wells, are small in size and placed high up. They are too high for anyone to watch from. However, from the author's observation, it seems that where all the windows and openings are found to open inside wells or semi private streets, there is good control of noise and overlooking, particularly from streets or neighbours. Furthermore, all the streets are located underneath the houses and most of them are covered, also solveing the problem of street view and noise. For that reason no one in the sample mentioned any source of noise or view coming from street or neighbours, only a few complained about noise from children playing.

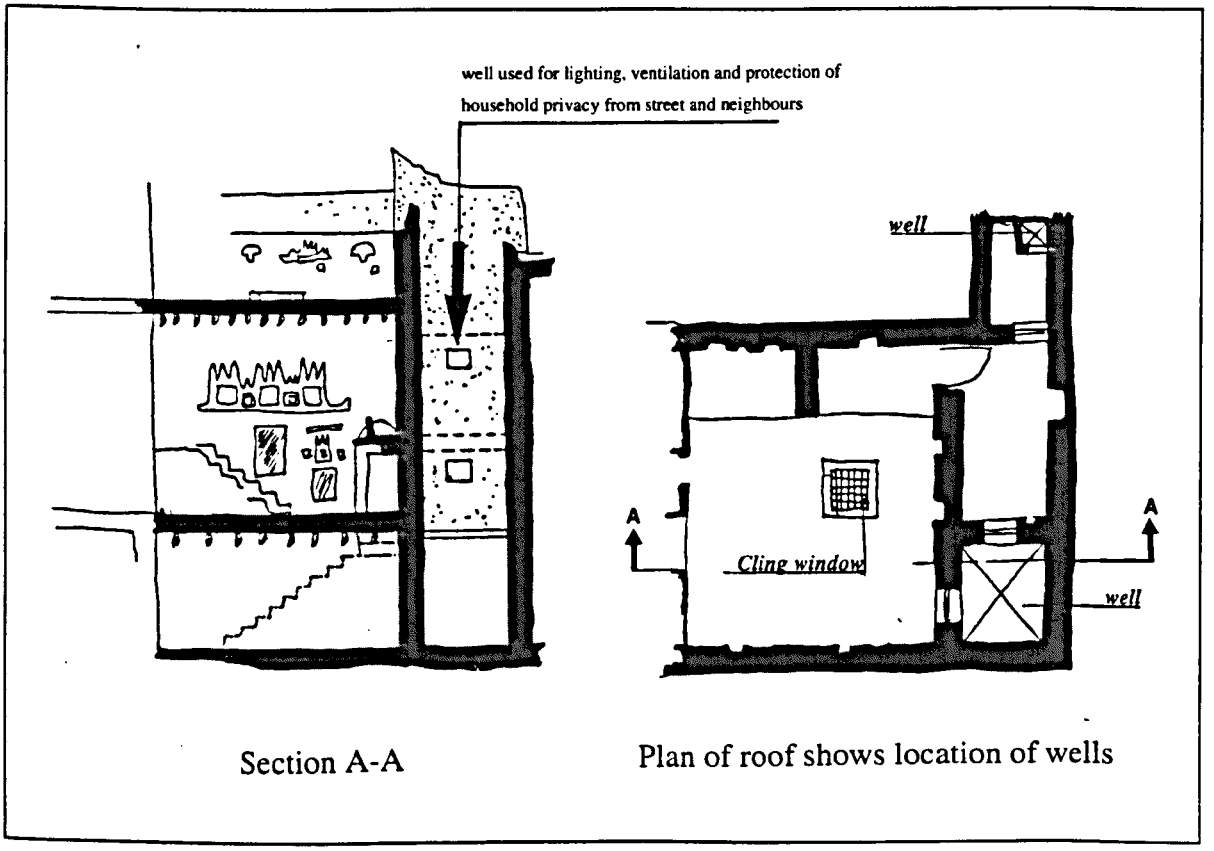


Figure 6.24: One of the wayes by which Ghadamesian people treat the problem of privacy

Source: Fieldwork, 1995

Statistical analysis showed significant differences among the respondents' age groups. The old and middle age groups recorded higher satisfaction than the young age group, that is because old and middle age groups recorded more information and experience about the traditional house than the young age group. For instance, some younger children spent only a few years in the traditional houses and did not have a complete idea about the traditional houses, therefore the age group influenced housing satisfaction strongly ($P< 0.001$) (table 6.11).

Table 6.11: Cross table of age of respondents and their feeling about their traditional houses in terms of the privacy (neighbours and street).

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	43	88	5	10	0	0	1	2	49	100
41-50	44	100	0	0	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	11	85	2	15	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	111	92	7	6	1	1	1	1	120	100

Source: Fieldwork, 1995

6.4.4 Users' opinion about their traditional houses in terms of religion

Islamic faith shaped certain characteristics of the socio-cultural patterns of Libya, but that influence is even more evident in Saharan communities, such as Ghadames and other nomadic or semi-nomadic settlements (Toni, 1968). The belief that " God is responsible for all outcomes" provided the inhabitants with an absolute faith in God, expressed both religiously and symbolically (Mason, 1977). This fact is reflected in the study where traditional houses are evaluated in terms of religion, and where it was found that religion

had a great influence on the dwelling design particularly in terms of relation to the local mosque and orientation.

6.4.4.1 Home orientation

House orientation is an important factor in terms of climate, but it may also be religiously prescribed. For example, the positioning of toilets is influenced by religious needs; WCs should not be placed in the direction of Makkah (Qibla orientation). Petherbridge, (1978:202), in his study about Muslim dwellings in Bosnia, noted that the Bosnian house was influenced by religious injunctions relating to pollution and the sanctity of the 'qibla' Makkah orientation. "Let him who eases nature or makes water not face the qibla or turn his back to it; but turn in either directions". The analysis of the users' opinion in terms of their homes' orientation showed that 90 per cent of the respondents noticed their satisfaction, 8 per cent expressed no opinion, 1 per cent were dissatisfied, and only 1 per cent made no reply (figure 6.25). The interviewees were asked about the reasons for satisfaction with their homes' orientation and they explained that the orientation enabled them to know the time for prayer and the orientation of Makkah.

It was expected that the longer residents lived in an area, the more attached to, and hence the more satisfied they were with their traditional residential area. Our findings show that the old age group, who had lived a long time in their traditional homes recorded a high level of satisfaction, more than the middle and young age group who had not lived a long time in traditional houses (see appendix 14).

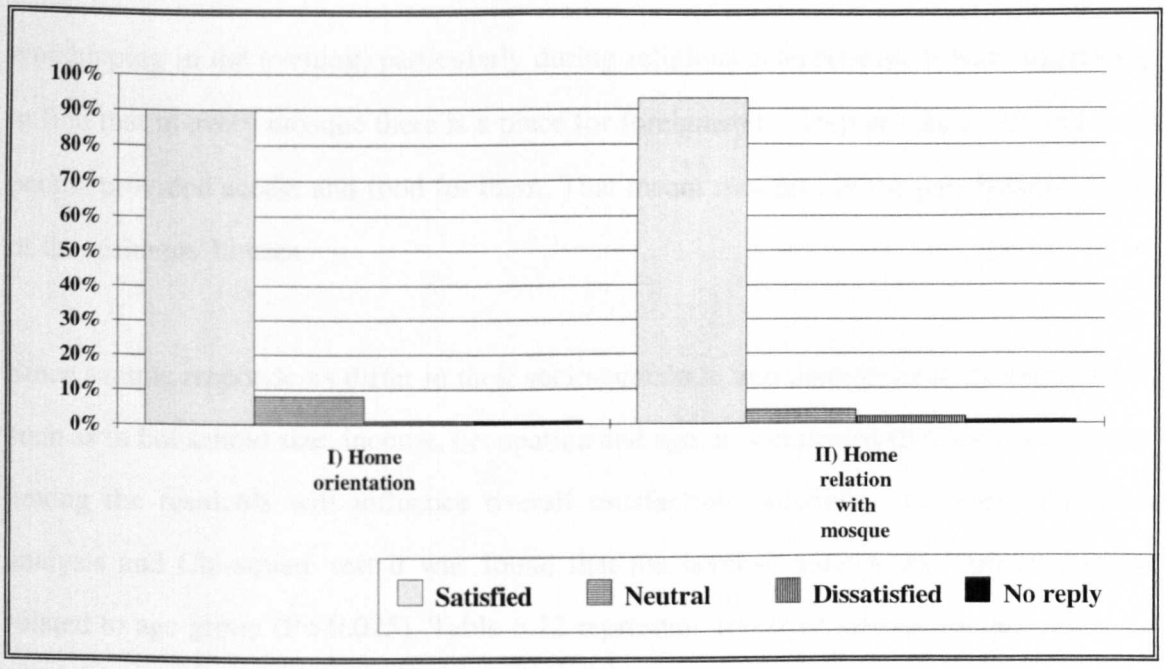


Figure 6.25: Residents' feeling about their traditional house in terms of religion

Source: Fieldwork, 1995

6.4.4.2 Home relation with the mosque

Houses in Ghadames, like other Islamic cities', were structured in a very strong relation with the local mosque. The call for prayer was clear and the people were able to hear it because the houses were built very close to the mosque (Piccioli, (1935). It is obvious from the investigation that the majority of interviewees, 94 per cent, were satisfied with their houses, 4 per cent were expressed no opinion, 1 per cent were dissatisfied, and only 1 per cent made no reply (figure 6.25). A discussion was held with the respondents to know the reasons for the satisfaction and it transpired that Ghadamesian people take into account Islamic principles before they built their houses, for example, in Islam praying in groups is preferable to praying individually. This fact was clear to people in the past who prayed five times a day in the mosque because their houses were very close to the mosques. In addition, it was learnt through observation that people were taking their baths in the mosque and they spent most of their time in the mosque reading the Koran and

worshipping in the evening, particularly during religious celebrations. It was interesting to find that in every mosque there is a place for foreigners to sleep or take a rest and local people provided access and food for them. That meant mosques in the past became a part of the residents' houses.

Since sample respondents differ in their socio-economic and demographic characteristics, such as in household size, income, occupation and age, it is expected that such differences among the residents will influence overall satisfaction. According to cross tabulation analysis and Chi-square test it was found that the level of satisfaction appeared to be related to age group ($P< 0.025$). Table 6.12 represents levels of satisfaction according to users' age groups.

Table 6. 12: Cross table of age of respondents and their feeling about their traditional houses in terms of the religion (home relation with the mosque).

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		Missing			
	No	%	No	%	No	%	No	%	No	%
20-30	3	100	0	0	0	0	0	0	3	100
31-40	43	88	5	10	1	2	0	0	49	100
41-50	43	98	0	0	0	0	1	2	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	113	94	5	4	1	1	1	1	120	100

Source: Fieldwork, 1995

6.4.5 Users' opinion about their traditional houses in terms of Prestige

Three types of information were collected about the traditional houses, by asking respondents several questions in order to measure their satisfaction with their houses and to understand better how they meet their users' social life needs in terms of prestige.

6.4.5.1 Quality of the house in terms of space and building materials

The respondents in Ghadames oasis were more concerned about the interior space than exterior space due to the climatic conditions. More than half the interviewees, 57 per cent, recorded their satisfaction with their traditional houses' quality, 3 per cent expressed no opinion, however 40 per cent were dissatisfied (figure 6.26) and complained about the low quality of traditional materials used in the building and wanted to make some improvements in order to maintain their houses. They were also dissatisfied with the size of the guest room and other rooms which were not spacious, such as the kitchen, and the lack of a sewage system. However, the author held interviews with some citizens, who were or still are using the traditional houses in order to investigate the above points of complaint, and found that, in the past, residents were used to semi private spaces like their houses, particularly when they had a large number of male visitors; for instance when they had wedding, festivals, and death occasions, when they used their neighbourhoods' squares and streets and the women during these occasions used their neighbours' terrace roof. This fact was directly reflected by the house design which has a strong relationship with external spaces. Moreover, in terms of the quality of traditional building materials, users noticed that traditional houses built with very strong local building materials 2,000 years ago and were still standing.

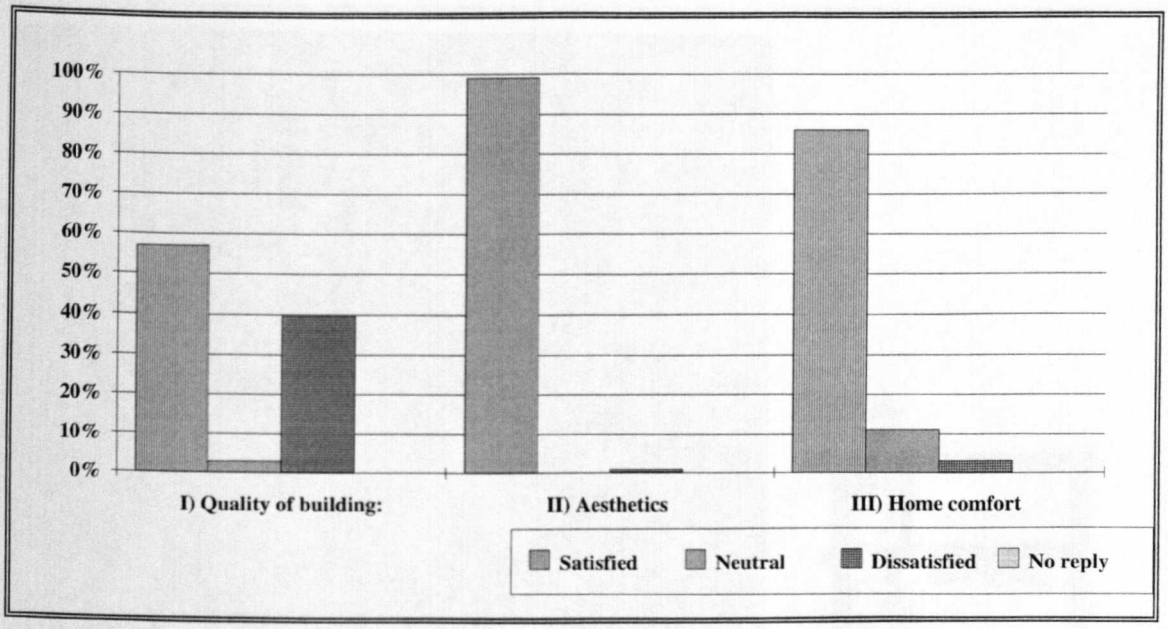


Figure 6.26: Residents' feeling about their traditional house in terms of prestige

Source: Fieldwork, 1995

The author observed from the house design that, as a general rule, each corner and each available space of the house has a function. For example, drinking Jars are placed in a round niche in the wall of the last landing of the grand staircase. These Jars form a very beautiful decoration, which are usually brought by the bride at wedding time (figure 6.27).

Statistical analyses were used to find which socio-economic characteristics influence the level of users' satisfaction with their traditional houses. From the cross tabulation analysis and Chi-square test, it was found that none of the demographic characteristics had influenced the respondents' satisfaction except the age factor which recorded a high significant level ($P< 0.001$). It was also found that the younger age groups were less satisfied than middle and old age groups. Appendix 15 represents respondents' feeling about their traditional housing, according to their age group.

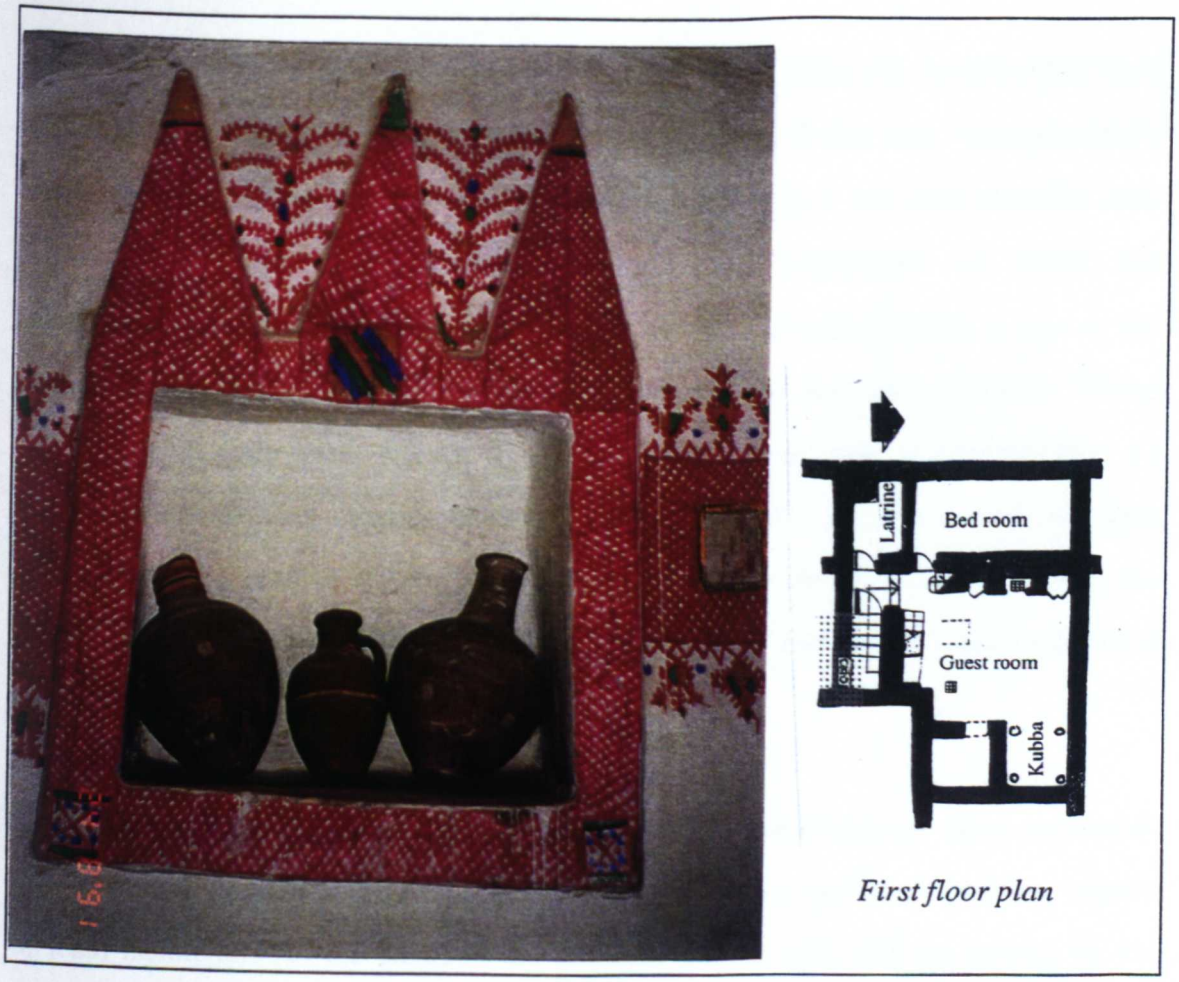


Figure 6.27: Location of drinking Jars

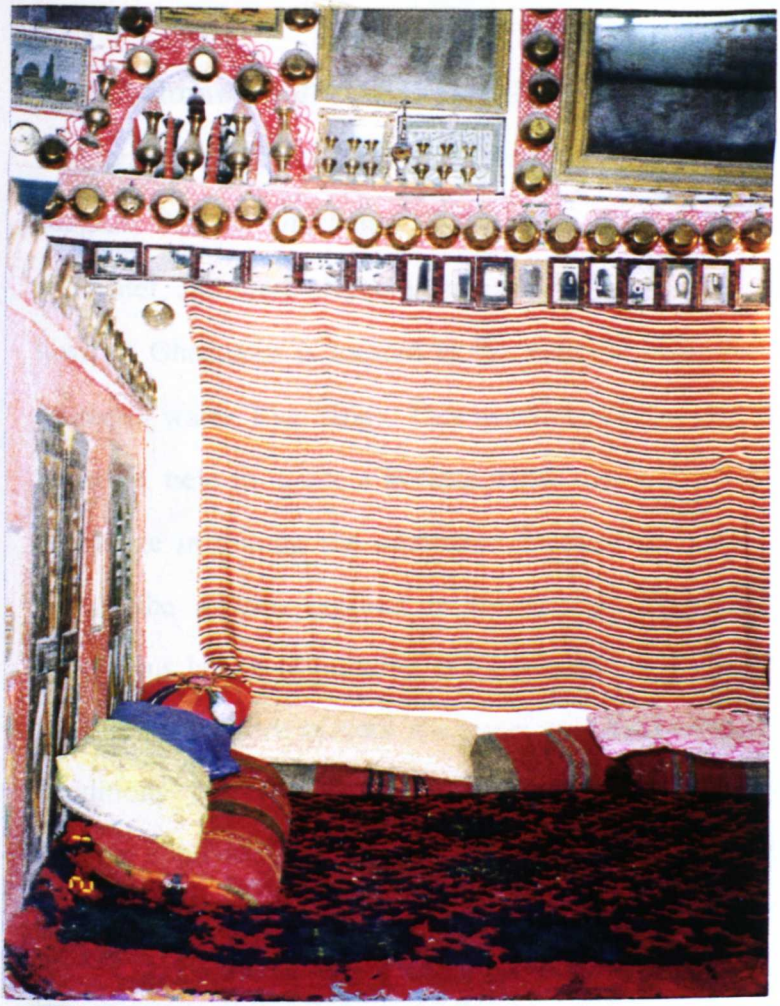
Source: Fielwork, 1995

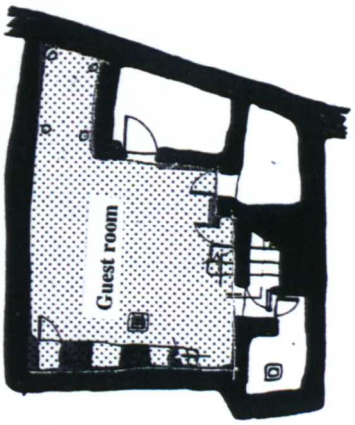
6.4.5.2 Aesthetics Needs in terms of decoration and landscaping

After they have satisfied the needs for security/safety, privacy and religous requirements people become aware of the need for beauty. According to Maslow, (1970) it is unlikely, in most cases, that while attempting to gratify a 'lower' order of needs, a person will seek to gratify his need for aesthetics and beauty for its own sake. Islamic architecture provides extensive decoration by means of calligraphy, geometry and foliation in a manner that conceals the structure rather than reveals it (Antoniou, 1981). Ghadames is a good example of an Islamic city where much decoration can be seen on house walls, windows

and ceilings and these provide a prestigious view for their users and visitors when local materials are available. A great majority of interviewees, 99 per cent, were extremely satisfied with their houses in terms of aesthetics, and only 1 per cent recorded their dissatisfaction (figure 6.26). During interviews with inhabitants we found that Ghadamesian people were very proud of their houses' decoration which is one of the qualities of the Ghadmes house that marks it as one of the best desert habitats. "These decorations, besides their present symoblic meaning, represent a simplification of influences accumulated through history" (Hassan, 1982:95). However, some of these decorations were abstracted from those Muslim decorative elements that are seen in the Arabic countries and were adopted for local decorative use and have acquired a different symbolic meaning.

From observation, it can be seen that the decorations are varied and use many expressive materials, ranging from locally-made paint to mirrors, brass, tapestries, pictures, objects of local handicraft. All the elements are arranged on the walls and the ground by the women. These decorations, as mentioned earlier, are concentrated within the guest's room (figure 6.28). Petherbridge (1978:198), in his study of the Islamic city, also observed that "the men's guest room is a symbol of the economic status of the household and is furnished with the precious possessions of the family; therefore it is generally the most decorated room of the house". The plants and greenery outside the traditional houses are regarded as very desirable and highly satisfactory. Statistical analysis shows that none of the demographic characteristics influence users' satisfaction, for instance, the young age group also recorded a high level of satisfaction with their traditional houses (appendix 16).





First floor plan

Figure: 6.28: Decoration of Traditional House guest room (Omar's House)

Source: Fieldwork, 1995

6.4.5.3 Home comfort in terms of climate

Observation and discussion with informants carried out in the traditional residential area suggests that the Ghadames traditional settlement has two natural elements, vegetation and water, and these played a great part in shaping the built environment. The traditional town of Ghadames is located in the heart of palm tree fields and near the oasis' main source of water, Eyn-Elfars. This vegetation and water, and the accompanying shade and moisture, help to create a micro-climate within the traditional residential area. There is advantage in joining the traditional houses together as closely as possible in order to reduce the surface exposed to sun and so limit heat exchange. "The compact and continuous layout of building in the Islamic city reduces land waste to a minimum, and provides a network of cool alleyways and squares and creates agreeable micro-climate conditions" (Antoniou, 1981: 23). As already described, the Ghadames house has a covered courtyard that receives its light and ventilation only from very limited openings inside wells or alleys, that also provides comfortable shelter in terms of climatic conditions (figure 6.29). A study done by Shawesh (1992, 1995) revealed that people living in Ghadames' traditional houses through the summer months without mechanical ventilation, or in winter without heating, passed the year comfortably in a gentle migration around the house. It is clear that users felt more comfortable and the data analysis shows that 86 per cent were satisfied with their houses climatic conditions, 11 per cent expressed no opinion, and only 3 per cent were dissatisfied (figure 6.26).

The difference in residents' level of satisfaction with where they had to live is found to be statistically significant. Cross tabulation analysis and Chi-square tests reveal that people of different socio-economic characteristics have no different opinion on the level of satisfaction ($P > 0.250$) about their house's response to the climatic conditions (see appendix 17). For example, no complaints were recorded from any of the respondents

who were interviewed, and even the young age groups were as satisfied as other age groups with their houses.

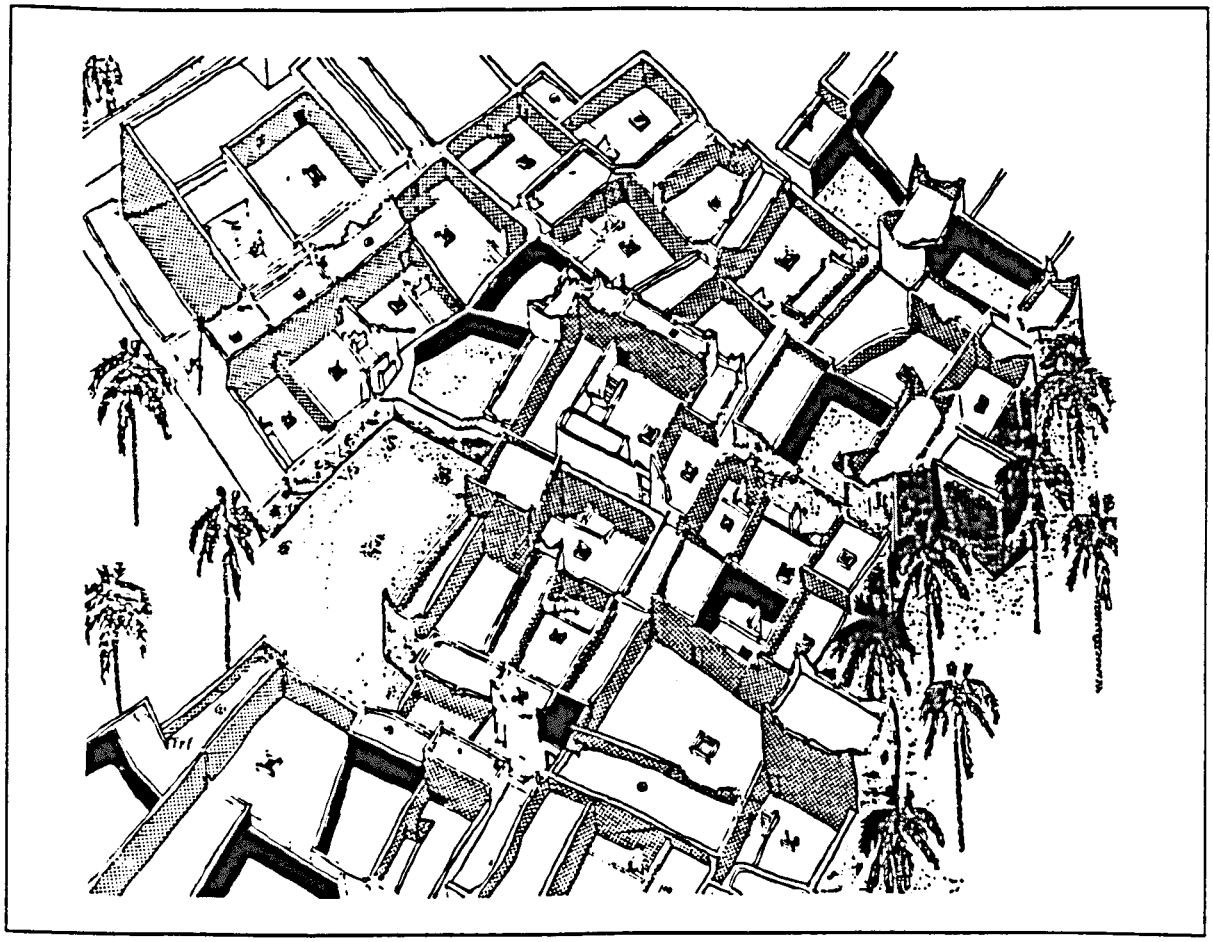


Figure 6.29: Ghadamesian houses as a compact structure design

Source: Fieldwork, 1995

6.5 Residential Mobilty in their housing environment

6.5.1 Index of satisfaction

Twenty-five variables were examined in this study in order to assess users' satisfaction with their traditional housing environment in terms of response to their socio-cultural needs. This section endeavours to identify the variables which contribute to the degree of

satisfaction or dissatisfaction "Index of satisfaction". This index is the measure of the relative weight attached to a variable by all the respondents taken together (Awotona, 1988:85).

Computation of the index of satisfaction: The first step in the computation of the index of satisfaction (**I S**) is to express the percentage frequencies for each variable, in all the three response categories (of Satisfaction, Neutral and Dissatisfaction) decimally. For example, if one takes the interviewees' response to the question about satisfaction with the settlement in terms of social life (variable 25) as an example, Satisfactory (83%) = 0.83; Neutral (5%) = 0.05; Dissatisfaction (2%) = 0.02.

The second step is to assign the following weights to each of the response categories; +1 for satisfaction; 0 for neutral; and -1 for dissatisfaction. The decimal value in each response category is then multiplied by the appropriate weight. The maximum index that a variable can have is +1.00 when all respondents are satisfied; the minimum is -1.00 when all respondents express dissatisfaction; and 0.000 when all respondents expressed no opinion. The results derived from table 7 indicate that all interviewees responded to the 25 variables and recorded their level of satisfaction with them. It also shows that all the respondents considered 22 out of the 25 variables of their housing environment which were selected for study as "**satisfactory**". However, respondents were dissatisfied with three variables; size of the dwelling and neighbourhood cleanliness, (highly dissatisfied), and quality of the house in terms of space and materials variables, (weak level of dissatisfaction).

Table 6.13: Index of satisfaction of 25 environmental variables selected for examining users' satisfaction with their traditional houses in terms of their socio-cultural needs

No	Variables Description	I S
1	Aesthetics in terms of decoration and landscaping	+ 0.98
2	Home relation with mosque	+ 0.93
3	Vandalism	+ 0.93
4	Privacy from neighbours and street (view & noise)	+ 0.91
5	Attempted Break in	+ 0.90
6	Type of building materials	+ 0.90
7	Dwelling layout	+ 0.89
8	Acoustics privacy	+ 0.89
9	Neighbourhood security/safety	+ 0.89
10	Home orientation	+ 0.89
11	Neighbourhood religion facilities	+ 0.88
12	Type of the dwelling	+ 0.87
13	Visual privacy	+ 0.84
14	Neighbourhood privacy	+ 0.84
15	Home comfort in terms of climate	+ 0.83
16	Settlement	+ 0.83
17	Dwelling location	+ 0.69
18	Neighbourhood recreation places	+ 0.65
19	Type of neighbours	+ 0.62
20	Neighbours status	+ 0.62
21	Relation with neighbours	+ 0.61
22	Neighbourhood location	+ 0.55
23	Quality of the house in terms of space and materials	- 0.17
24	Neighbourhood cleanliness	- 0.24
25	Size of the dwelling	- 0.65

Source: Fieldwork, 1995

6.5.2 Residents Mobility in their neighbourhoods and houses

Homogeneity between the Ghadames community was structured around firstly, the nuclear family, then the extended family, the sub-clan, the clan, the sub-tribe and at the top of the hierarchy, the tribe. This social structure and organisation of Ghadames' traditional settlement ensures the stability and well-defined social homogeneity for the Ghadamesian people. According to several interviews and discussions with inhabitants and key figures it was revealed that people never move from one neighbourhood to

another, from house to house or modify their houses. People in Ghadames tend to live in household groups of interrelated people from birth through childhood, marriage, old age to death. The system of tribes makes the residents content to stay within their own area near to their relatives. Moreover, the arrangement of the houses makes it unnecessary for individuals to move from one neighbourhood or house to another because they can satisfy their need for social intercourse within their own surroundings. Problems between house dwellers are solved within the framework of the group. As families increase in number, with the resultant lack of living space, it is common for a neighbour to buy one room from another neighbour which can then be added to the family house (figure 6.30). When the increasing number in several households leads to overcrowding, the housing authority will help to ease their pressure by providing new land for building adjacent to the old houses. These networks of relatives create stability for Ghadamesian people the whilst they stay in the traditional area.

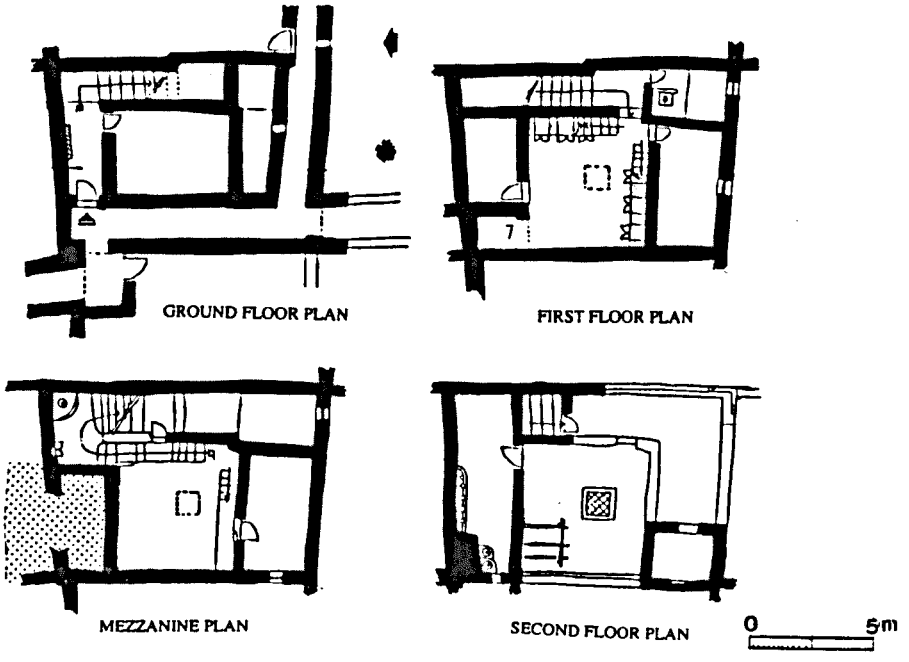


Figure 6.30: Change of room ownership
Source: Fieldwork, 1995

6.6 Summary

The users make an evaluation of their traditional houses' design with regard to their choice of dwelling, security, privacy, religion, and prestige on three levels, settlement, neighbourhood and house. Both physical and non-physical attributes are used to evaluate the degree to which the traditional housing and social environment contributed to the respondents' satisfaction. To conclude, data in this chapter reveal the emphasis placed on those socio-cultural values in the traditional residential area and not only on the level of the house but on the level of neighbourhood and settlement as a whole. Moreover, statistical analysis shows that people of different age groups and size of houshold were found to have different degrees of satisfaction at all levels. The other demographic factors had no influence on respondents' degree of satisfaction, such as annual income, occupation and so on.

The evaluation of the traditional settlement showed that a great majority of the respondents were satisfied with it, particularly those in the middle age and older groups. However, young age groups recorded the lowest level of satisfaction because they criticise the traditional settlement in terms of the sewage system and the narrowness of the streets which prevents the flow of traffic. With regard to the whole socio-cultural value we understand that the traditional settlement successfully meets its users' social requirements but it has not met the needs of those following a modern lifestyle, particularly where traffic and sewage systems are concerned.

The neighbourhood social system and the layout of the houses and the surrounding alleys, squares and mosques, function to support the social structure that requires both isolation and participation from the public spaces. There is a hierarchical arrangement of spaces leading to the house. The results show that the majority of respondents were satisfied with

their traditional neighbourhood. However, as mentioned earlier, at the settlement level residents complain about the poor condition of the traffic and sewage.

The findings indicate that traditional houses were designed in accordance with the wishes of the users who co-operated in the design process. It is clear that users' opinions of their traditional dwellings showed the importance of flexibility and the ability to design houses to conform to their social life needs. Although Ghadamesian traditional houses were built with very limited economic and land resources, they were able to respond to all the socio-cultural needs and provided protection against the harsh climate. Younger users found fault with the size of the traditional houses, considering them lacking in spaciousness and therefore unsuitable for modern furnishings. They were also critical of the local building materials as they considered them less durable.

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CHAPTER SEVEN

CHAPTER SEVEN

EVALUATION OF USERS' SATISFACTION WITH THEIR CONTEMPORARY HOUSING

Table of Contents

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7.1 Introduction

The previous chapters have presented users' satisfaction with their traditional houses in terms of response to their social life needs. In order to give a complete pictue, this study aims to assess the housing setting in terms of social life needs in both the traditional and contemporary housing. An attempt is made in this chapter to examine the users' satisfaction with their contemporary housing design in terms of response to their socio-cultural needs. A study has been carried out to discover the degree of users' satisfaction with their present houses regarding their social life needs. The interrelation between each of the socio-cultural values and physical elements of the internal environment in the contemporary housing and its effect on users' overall satisfaction is discussed, in order to evaluate the reasons for user satisfaction or dissatisfaction with contemporary homes according to their socio-cultural requirements.

The evaluation of the contemporary settlement was carried out at three levels; users' opinions about the settlement were sought, and neighbourhood and dwellings were studied in terms of the users' response to their social life needs. This evaluation gives a complete picture about the present Ghadamesian houses and identified what the residents like or dislike, and what makes them satisfied or dissatisfied with their contemporary houses.

7.2 Users' Evaluation of their Contemporary Settlement

The contemporary settlement is located, as mentioned previously in chapter five, outside of the Ghadames oasis, in a harsh unprotected area where there is no water and no green areas (figure 7.1). It was designed by Polish architects Mika Ratshiva and Andrzej Zukowski in complete conflict with traditional housing design, construction methods and

building arrangement, i.e. streets, allocation of public services, scale and other common places. It was established in 1980 to solve the shortage of housing in the Ghadames oasis. This section examines the degree to which this new settlement meets the users' socio-cultural needs and the protection it gives them from the harsh climate.

The residents in the sample under study were asked to assess the quality of the appearance of their contemporary settlement. A three point scale was used for the assessment, ranging from satisfied, through neutral, to dissatisfied. It was interesting to note that the settlement location and availability of public services were found to be closely related to the level of users' satisfaction. The majority, 94 per cent of respondents, were dissatisfied, 3 per cent expressed no opinion, and 3 per cent made no reply (figure 7.2). A discussion carried out with respondents showed that they felt that the settlement was not well planned. For instance, they questioned the ratio between the blocks' heights, the availability of the water and availability of public services, such as schools, shops, mosques and so on and felt that the contemporary settlement was not protected from the harsh climate.

Observation revealed that the respondents seem to have their opinions influenced by their previous experiences. This could be due to the fact that contemporary housing design in Libya is a new phenomenon and people lack knowledge about it, because it was designed by foreign architects who hve no experience about local people's social life needs. The components of residents' satisfaction with their settlement indicate that availability or proximity to services and facilities was important.

Figure 7.1: Location of Contemporary settlement

Source: Fieldwork, 1995

Residents' interviews suggested that the contemporary settlement is luxurious, compared with the traditional settlement. However, the high level of dissatisfaction with the contemporary settlement can be explained by the very poor planning and design with regard to their users' social life and climatic needs, and as well as the lack of public services compared with residents' previous houses. For example, most of the residents still use some public services in the traditional settlement such as squares, guest houses, schools, mosques, markets, some office buildings, such as the Libyan Air Line Office, as well as obtaning fruit, vegetables, dates and other agricultural produce from the traditional settlement. Similar results were reached by Been Swessi (1993:15), who noted that "the contemporary settlement represented a failure on two levels, physical and

psychological. The project is lacking the poetry and depth of meaning". Showing that the architects had not studied the physical and social needs of the people living in Ghadames.

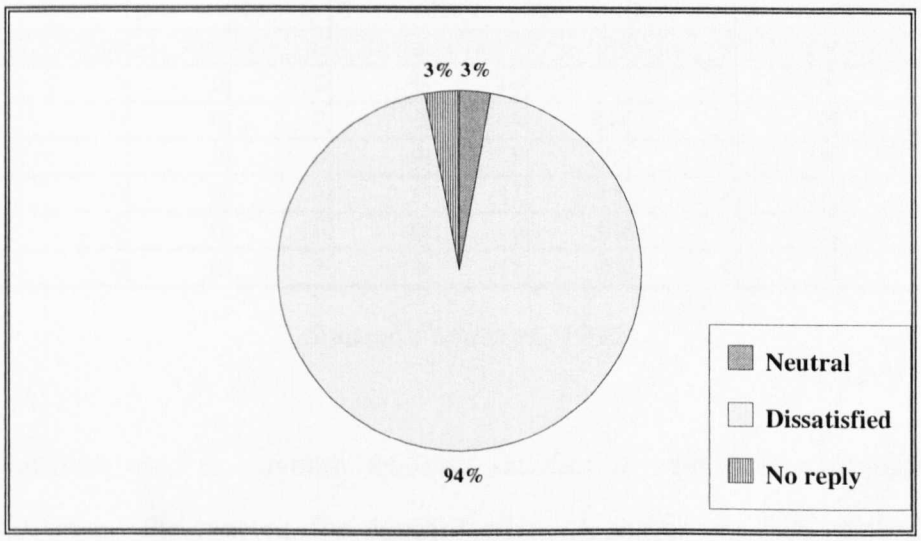


Figure 7.2: Respondents' degree of satisfaction with their contemporary settlement

Source: Fieldwork, 1995

A cross tabulation analysis was used to find out which demographic factors, such as income, size of household, occupation and age group influenced the users' satisfaction with their settlement. The result shows that residents were generally dissatisfied with their contemporary settlement. None of the demographic characteristics has had an impact on the respondents' degree of satisfaction ($P > 0.100$). For example, all the age groups were found to be unhappy with their contemporary settlement, even the young age group (table 7.1) complained about the settlement's location, its inconvenience and the lack of public facilities such as mosques, schools and shops.

Table 7.1: Cross table of age of respondents and their feelings about their contemporary settlement

Age group	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	0	0	3	100	0	0	3	100
31-40	0	0	2	4	44	90	3	5	49	100
41-50	0	0	0	0	44	100	0	0	44	100
51-60	0	0	0	0	5	100	0	0	5	100
61-70	0	0	1	8	11	85	1	7	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	0	0	3	3	113	94	4	3	120	100

Source: Fieldwork, 1995

Another measure used to examine residents' satisfaction with their settlement location was to ask about the reasons for dissatisfaction. A discussion held with Ghadames municipality key figures shows that the authority gave no opportunity to the local architects and the residents to co-operate in the choice of the contemporary settlement location. Unfortunately choosing the location and the design process were done by foreign contractors through the central housing office of the Secretary of Housing in Tripoli. That caused the Ghadames authority and the inhabitants many social and climatic problems, for example, most people live at a distance from mosques, schools, and routine marketing facilities, and lack recreation areas and any green area. The settlement also does not have enough public buildings for the 616 households; there are only three schools, two used as primary schools, and the other still under construction, one mosque is also still under construction (figure 7.3). There has been no space left for increasing the number of public facilities, particularly schools and mosques. In addition, there is a water problem as there is no source of water within the contemporary settlement.

A) School in use
B) School under construction
C) Market under construction
D) Shops in use
E) Mosque under construction
F) Library in use
G) Clinic in use
H) Children's play areas, abandoned

Figure 7.3: Availability of public services in contemporary settlement

Source: Fieldwork, 1995

7.3 Users' Evaluation of their Contemporary Neighbourhoods

Contemporary neighbourhoods were planned and designed without concern for the traditional neighbourhood, particularly in terms of the socio-cultural and way of life needs. For that reason it is very important to assess the quality of contemporary neighbourhoods in terms of social life response and to see how well they function by asking their occupants how satisfied they are. Sample respondents were asked five questions, in order to find their overall satisfaction with their neighbourhoods in terms of choice, privacy, security, religion and prestige as set out below.

7.3.1 The choice of the neighbourhood

7.3.1.1 Neighbourhood location

Users were asked about the opportunity given to them to choose their neighbourhoods. The majority of respondents, 56 per cent, were dissatisfied, 28 per cent expressed no opinion, 14 per cent were satisfied and 2 per cent gave no reply (figure 7.4). A discussion was carried out to find which factors made the respondents dissatisfied. If residents had relatives in the same area and were near facilities such as workplace, schools and mosques they were more likely to be satisfied with their neighbourhoods. The most frequent complaints were about lack of relatives, recreation places, noise level and inconvenient location of mosques, schools and shops. However, residents who felt satisfied were living near their relatives and public facilities by chance, no opportunity was given to them to choose their neighbourhoods like others.

As for the influence of the socio-economic characteristics of the household on the level of neighbourhood satisfaction, a cross tabulation analysis and Chi-square test shows that age was a significant factor in the residents' satisfaction with their neighbourhoods' location; ($p < 0.025$)[1]. The youngest group recorded a higher level of satisfaction than middle and old age groups (appendex 18).

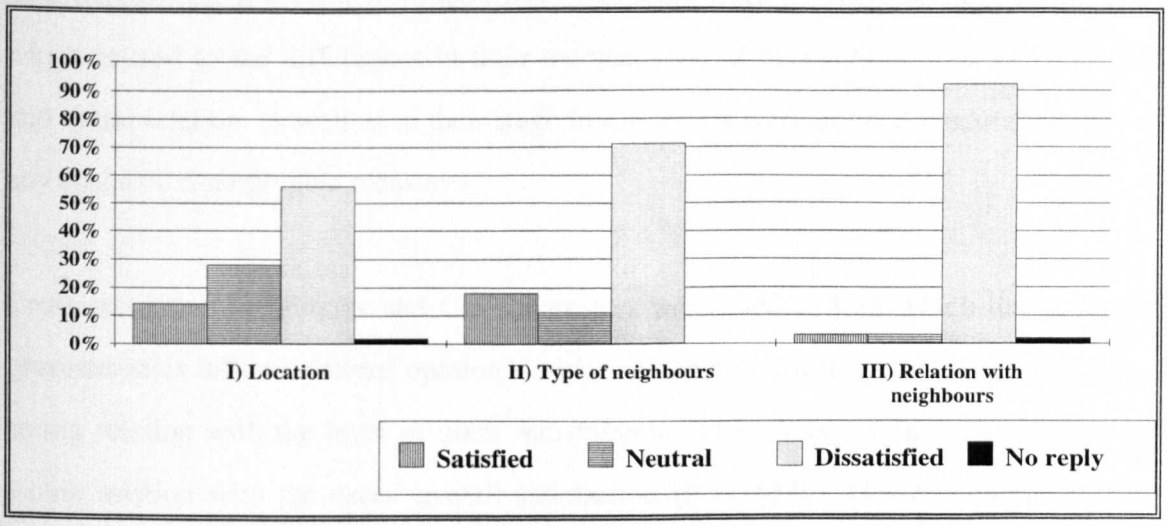


Figure 7.4: Respondents' degree of satisfaction with their contemporary neighbourhoods in terms of the choice of the neighbourhood

Source: Fieldwork, 1995

7.3.1.2 Type of neighbours

As studied earlier in chapter six, the traditional neighbourhoods were divided according to their local social system, however, in this section users' feelings about their neighbours type in their contemporary neighbourhoods is examined together with what measures were taken when users occupied the present neighbourhoods. The data from the survey showed that the highest degree, 71 per cent, were dissatisfied, 11 per cent recorded no opinion and only 18 per cent were satisfied with neighbours type (figure 7.4). People who

[1] p: the significance of a variable indictes the strength of our argument that this variable is affecting the residents' satisfaction. The smaller the p-value, the more sure we can be that this variable is important.

were asked about the reasons which made them dissatisfied with their neighbours' type said that the Housing Authority, when they distributed the contemporary houses, did not take into account neighbours' characteristics such as occupation, household size, household annual income, education level, age of the head of household and even the social relations were neglected, as well as no opportunity being given to them to select their neighbours. It is clear from the survey that there were conflicts between neighbours which related to the differences in their income, type of occupation, level of education and social relation, as well as in their stage in life. Users were divided randomly, without any social or demographic measures.

Cross tabulation techniques and Chi-square test were used to find which demographic characteristics influence users' opinion of their neighbours, for instance, age group, has a strong relation with the level of users' satisfaction. Other demographic aspects have no strong relation with the users' overall satisfaction ($P > 0.250$). However, some groups recorded satisfaction with the neighbours' type because they were living near relatives or suitable neighbours. This group's satisfaction came by chance as they were not given the opportunity to select their neighbours like other groups (appendix 19).

7.3.1.3 Relation with neighbours

The importance of neighbourly relations to the residents under study, and the influence of negative relationships with neighbours on their overall satisfaction with their neighbourhood were found to be very important. Yeh (1974:41) notes a similar result "Satisfaction with housing is mainly conditioned by social relations with neighbours and the view of the immediate social situation as satisfactory in a sense makes up for the unsatisfactory physical features of housing". Residents were asked if they had a good relationship with their neighbours or not. For example, the cleaning of shared access areas within the neighbourhood presented the prime problem, with children's play being another

major concern. Survey data indicates that a high percentage of respondents who had problems with their neighbours, 92 per cent were dissatisfied, 3 per cent expressed no opinion, 3 per cent were satisfied and had no problem with their neighbours and 2 per cent made no reply (figure 7.4). Users were asked about the reasons for dissatisfaction and replied that they had no opportunity to select their neighbours. Therefore, respondents in the sample could not keep their relationships on a positive level for socio-cultural reasons. This creates problems between neighbours and their satisfaction begins to decline.

Further evidence about the importance of neighbour relation to the residents under study is shown in table 7.2. Differences in users' general satisfaction were found. There is a strong relation between residents' satisfaction with their neighbours and socio-economic status, particularly in certain age groups which were found to have a relatively strong and highly significant relationship ($P< 0.001$). The old age group had more experience about the neighbours' relations in the traditional residential areas and recorded higher dissatisfaction than the young and middle age groups. These findings suggest that, in Libyan housing environments, compatibility of the residents, in terms of social relation and other socio-economic factors, could be a crucial factor in promoting residents' satisfaction. Similar conclusions were reached by Abu-Ghazzeh (1995) in his study of place and adaptation (the social system, material cultural and the spatial pattern of arable land) in Saudi Arabia where they have similar socio-cultural values and the same religion.

A discussion with residents revealed that relative homogeneity, if it is taken into account, may increase levels of satisfaction with the social life in the contemporary area, and may promote social relationship between neighbours. This fact is also noted by Gans (1961:136) "if neighbours are too diverse, difference of behaviour or attitude may develop which can lead to coolness or even conflict". In review of the studies on the environment

behaviour issue, Rosow, (1961) supported the opinion of Gans. Indeed, this fact was emphasised in this study when it was found that most residents with large groups of relations were satisfied. On the other hand, a significant number of people had no relationship with their neighbours and were dissatisfied with their neighbourhood social life.

Table 7.2: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of relation with neighbours

Age group	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		Missing			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	1	2	1	2	47	96	0	0	49	100
41-50	1	2	0	0	43	98	0	0	44	100
51-60	0	0	2	40	3	60	0	0	5	100
61-70	0	0	1	8	12	92	0	0	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	4	3	4	3	112	92	0	0	120	100

Source: Fieldwork, 1995

7.3.2 Security/safety

Discussion with residents revealed that people living in the neighbourhoods are of tribal origin and some of them came from outside Ghadames and that made it difficult for the respondents to control their neighbourhoods in terms of security. For example, several burglaries took place in their houses and cars were broken into and or stolen and the people and police were unable to find the culprits. The author has witnessed, during the fieldwork, two shops which were burgled and that people were putting their cars in the front of their houses to keep them under their observation. However, residents in contemporary neighbourhoods were more concerned about the traffic problems, there are dangerous intersections and much speeding traffic. Traffic safety within residents' areas is vital, and there is serious concern for the safety of children who go to school and play in

the vicinity of their homes. The data from the survey showed that 90 per cent were dissatisfied with their neighbourhood, 7 per cent expressed no opinion, 2 per cent were satisfied and 1 per cent made no reply (figure 7.5). The respondents who considered there to be a security/safety problem were asked to identify the main diffculties. The majority of parents, and those planning to became parents in the near future, were concerned about the safety of their children at play because the contemporary playground was badly located and poorly designed. There is a lack of any greenery or equipment for chlidren, particularly for those aged six to twelve, who cannot go away from their homes. These children's play areas are not used, and they have become empty because there are no designated "play grounds" for the children, or any indication of a particular arrangement for children's play (figure 7.6). Holme & Massie, (1970) stated this fact in their study and reported that childrens' play needs are often a low priority in the design of housing areas. Lack of play areas is not uncommon in many housing developments. For that reason children are now going to the traditional residential area to play because play areas are available there. In addition, children attending school have to walk long distances, crossing several roads creating a traffic danger because there are not enough schools and the existing ones are in inconvenient places.

Observation carried out revealed that there is a lack of safe parking areas and that users were parking their cars along the road sides near their house entrances. This situation was criticised by the fire safety authorities. Moreover,because of the lack of particular play areas, children were sometimes using common spaces such as roads, pavements and spaces between houses, this is discouraged because of the danger from the passing traffic. For that reason, parents became more worried about the safety of their children at play time. El Fortea (1989:185) in his study of the modern housing in Misrath, Libya observed the same problem, " the new housing left no open spaces, no landscaping, no children's

play area or gardens". This, in turn, increased the level of dissatisfaction with the safety of the contemporary neighbourhoods.

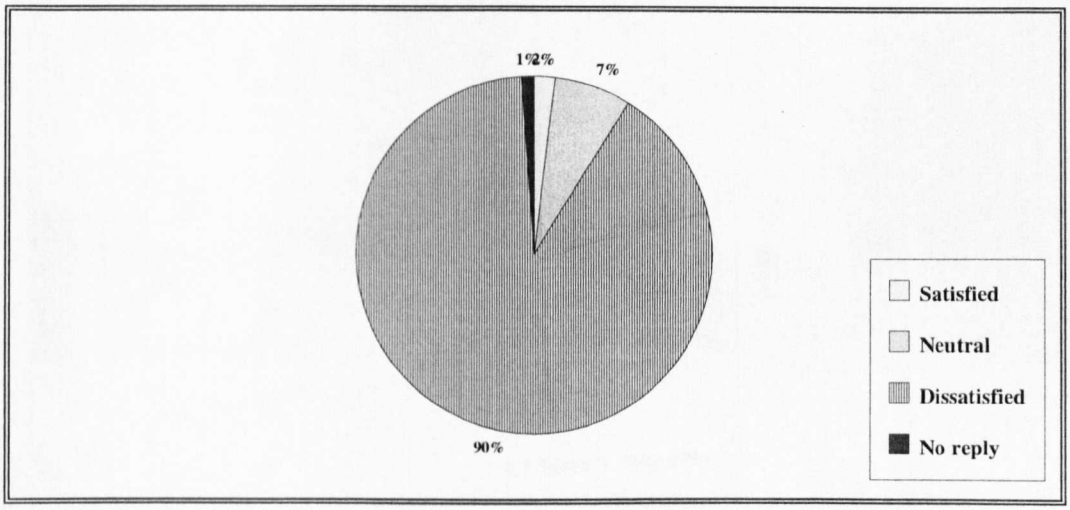
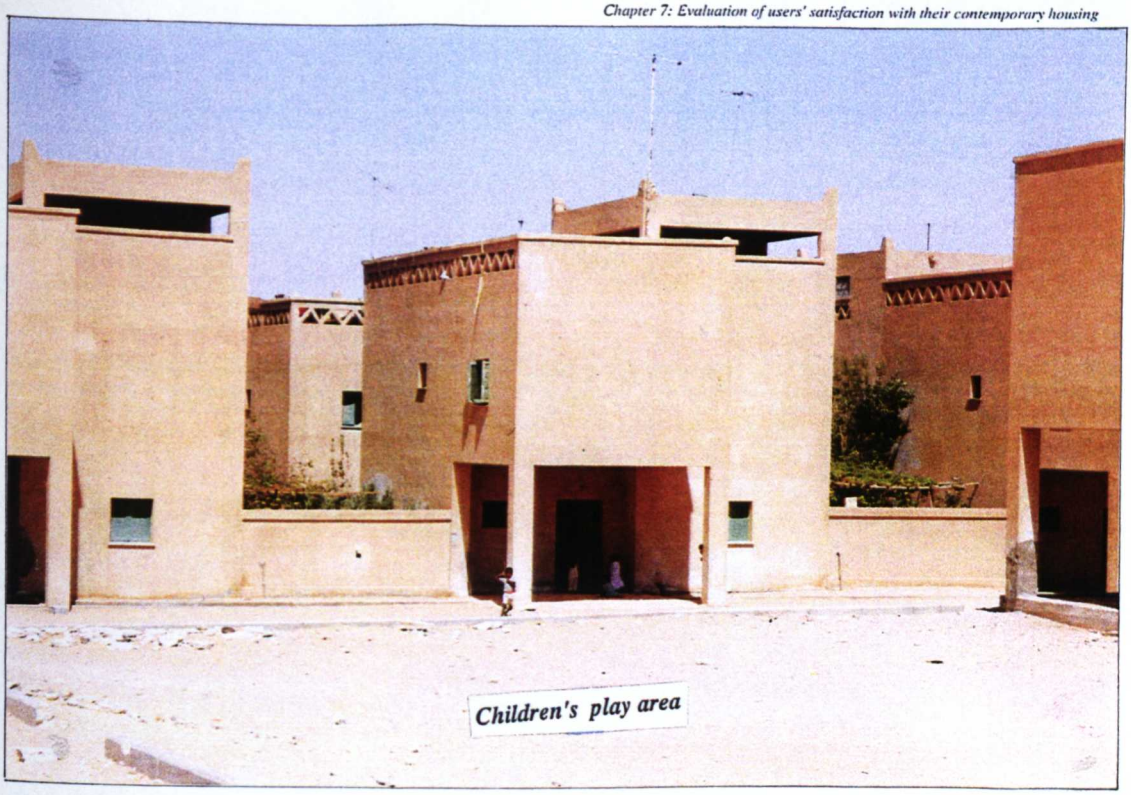


Figure 7.5: Respondents' degree of satisfaction with their contemporary neighbourhoods in terms of security and safety

Source: Fieldwork, 1995

The data analysis found that the differences in socio-economic factors of the households are related to differences in overall satisfaction. The results of cross tabulation and Chi square techniques showed an insignificant relationship. Age group, annual income, and occupation variables had a very weak effect on residents' level of satisfaction with their neighbourhoods' security/safety. Only the household size variables were found to have a significant relationship with users' level of satisfaction ($P< 0.006$) because the respondent who has a large household also has more children and also has more experience than the others about traffic accidents (table 7.3). This is particularly true in the contemporary neighbourhoods, where there are dangerous intersections and much speeding traffic.



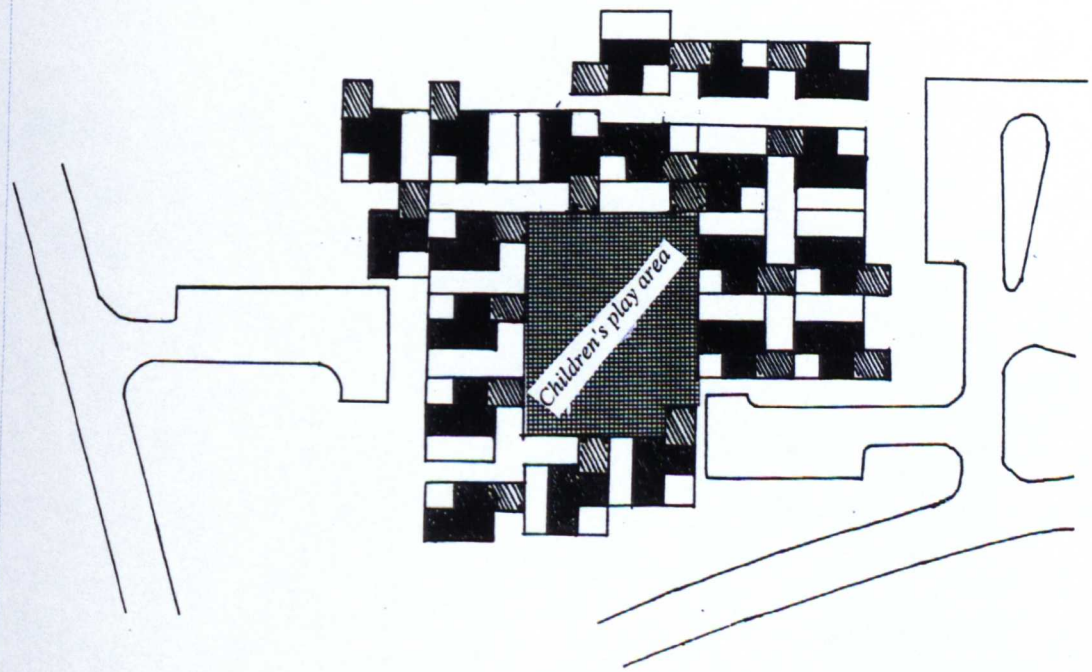


Figure 7.6: Children's play areas in contemporary neighbourhood lack greenery or equipment

Source: Fieldwork, 1995

Table 7.3: Cross table of household size of respondents and their feeling about their contemporary neighbourhood in terms of safety

Household size	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
1	1	33	0	0	2	67	0	0	3	100
2	1	25	0	0	3	75	0	0	4	100
3	0	0	0	0	5	100	0	0	5	100
4	1	4	1	4	25	92	0	0	27	100
5	0	0	3	14	19	86	0	0	22	100
6	0	0	0	0	19	100	0	0	19	100
7	0	0	3	0	0	0	0	0	0	100
8	0	0	2	17	10	83	0	0	12	100
9	0	0	0	0	10	100	0	0	10	100
10	0	0	1	8	11	92	0	0	12	100
11	0	0	1	17	4	66	1	17	6	100
Total	3	2	8	7	108	90	1	1	120	100

Source: Fieldwork, 1995

7.3.3 Users' opinion about Privacy

Residents not only need privacy inside the dwelling, but also need it in the open spaces. Coulson (1980) stated that people interpreted privacy outside as freedom to do as they please in terms of clothing and behaviour. It appears from informal discussions that the residents need places for their outdoor activities such as formal activities including community meetings for discussing problems, and informal activities which include gathering and playing. The respondents were asked to assess the level of privacy outside their dwellings on a neighbourhood level, on a three points scale; "satisfied", "neutral", "and dissatisfied", plus the "no reply" option for those who are do not care about privacy. The data analysis showed that the majority of the residents in the sample were dissatisfied with the level of privacy in their neighbourhoods, as 87 per cent were dissatisfied, 8 per cent expressed no opinion, 3 per cent were satisfied and 2 per cent recorded no reply (figure 7.7).

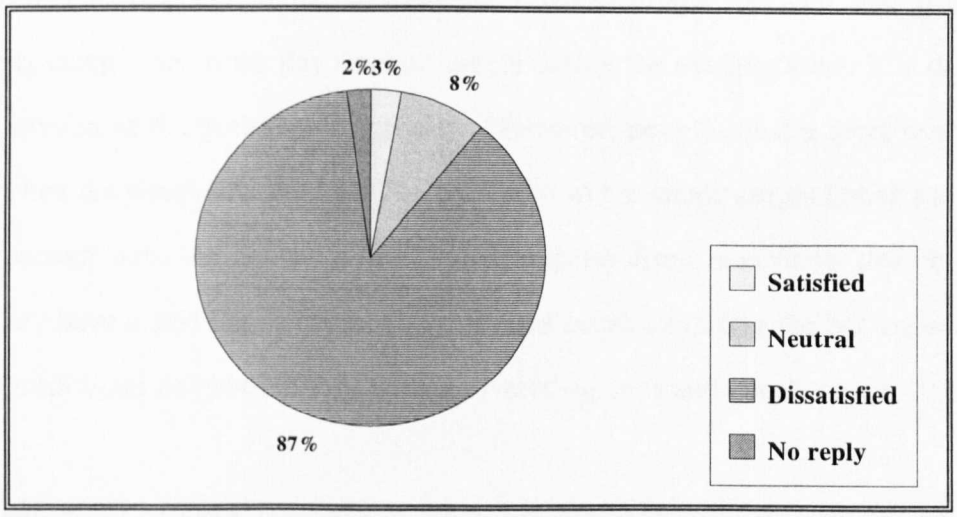


Figure 7.7: Respondents' degree of satisfaction with their contemporary neighbourhoods in terms of privacy

Source: Fieldwork, 1995

Users were also asked to express their overall opinion on why they were dissatisfied with their neighbourhoods in terms of privacy and it was noticed that their contemporary neighbourhoods lack any covered meeting places or trees and there were few uncovered spaces. These spaces are, therefore, not suitable for men to gather, as this would affect the privacy of the nearby houses and would not be suitable for climatic reasons. People could not carry out some of their traditional activities in the common spaces of the contemporary housing area, particularly the old age groups. For example, they are not able to play dominoes or cards as they used to in the traditional housing area. These activities cannot be carried out in the common spaces as they would disturb the nearby housing privacy.

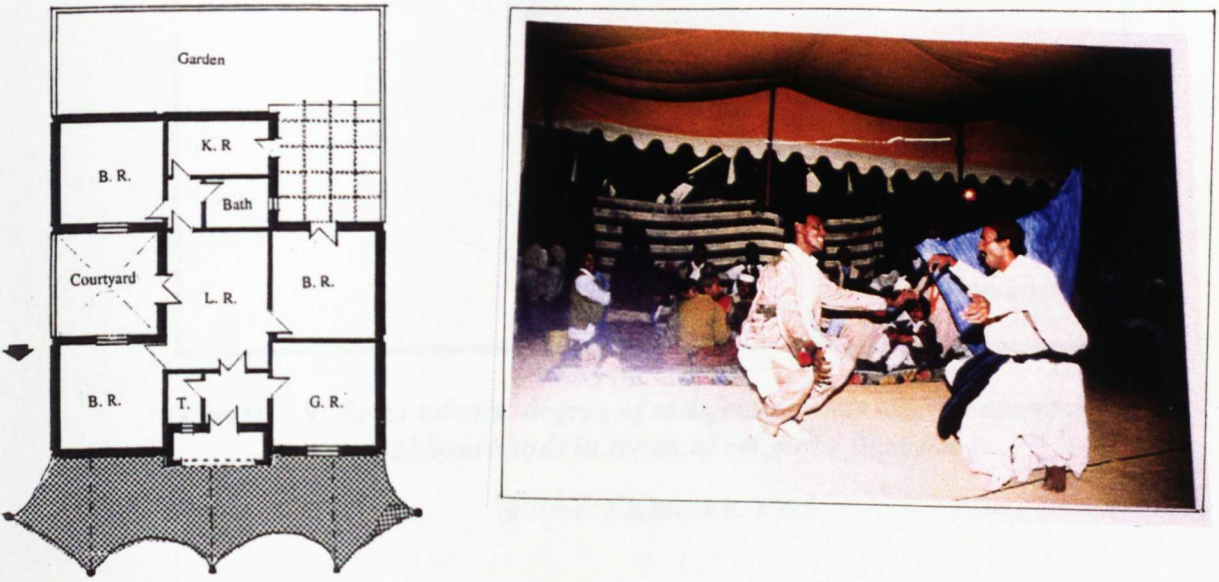
Observation carried out in the contemporary housing area revealed that people meet outdoors, using tents in the day time or streets during the evening when it is dark (figure 7.8) to overcome the problems of privacy. Moreover, people usually meet near the local shops when the weather is not hot. The entrances to the shops are sheltered and therefore visual contact with the houses is avoided. It appears from interviews that respondents, when they have a wedding, a death, or a religious occasion during the hot season, go back to their traditional neighbourhhods where covered squares and streets are available.

The relationship between respondents' demographic characteristics and their satisfaction was found to be weak except for age group, which was relatively strong and had a highly significant relationship ($P < 0.001$). The young age group were satisfied with their contemporary neighbourhoods in terms of privacy but the middle and old age groups were dissatisfied (appendix 20). The reasons for the satisfaction expressed by the young were that they have no experience of the contemporary housing in terms of privacy because, most of them had just got married and they are a very small number compared with other groups in our sample.

7.3.4 Users' opinion about religious facilities

Availability of mosques is an important element in Moslems' lives as well as a focal point of the Moslem cities. People go to the mosque five times a day for prayer. However, this fact was not take into consideration by the designer. The contemporary settlement of 616 housing units contains only one mosque, which was still under construction and this caused inconvenience and meant there was a lack of Koran schools for studying the Koran and the basic principles of the religion. Respondents in the sample were asked to assess their neighbourhoods in terms of whether they met their religious needs. 93 per cent were dissatisfied with mosque facilities in their neighbourhoods. Sources of

Street used as celebration place during night



Tent used as meeting and celebration place

Figure 7.8: The common places used for meeting and celebration in the contemporary neighbourhoods.

Source: Fieldwork, 1995

dissatisfaction with mosque availability arose from the fact that people had to walk a distance five times a day to reached a mosque for prayer. This is difficult for them, particularly elderly people, and if they cannot manage, they feel physically uncomfortable and spiritually uneasy. Most of the prayers go to the traditional settlement where large numbers of mosques are available, but that is dangerous particularly during night prayer and especially during the hot summer days. However, 2 per cent expressed no opinion, 4 per cent were satisfied and from the discussion most of satisfied respondents were those who do not go to the mosque to pray regularly, and only 1 per cent made no reply (figure 7.9).

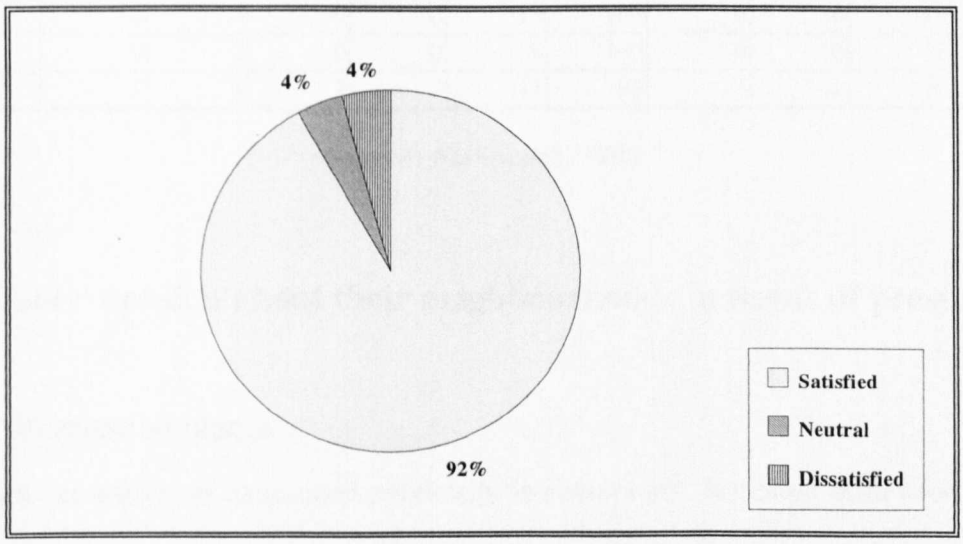


Figure 7.9: Respondents' degree of satisfaction with their contemporary neighbourhoods in terms of religious facilities

Source: Fieldwork, 1995

The empirical evidence in table 7.4 shows that the age group factor had more influence upon the residents' overall satisfaction than the other demographic factors ($P < 0.001$). The young age group recorded a high level of satisfaction with their neighbourhoods' religious facilities than the other groups. The reasons for the young age group's

satisfaction, as mentioned earlier, was that they were not in the habit of going to the mosque for prayer. For this reason the young age group were less concerned about mosque facilities than the other groups who regularly went to the mosque for worship.

Table 7.4: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of religion

Age group	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	3	100	0	0	0	0	0	0	3	100
31-40	2	4	3	6	43	88	1	2	49	100
41-50	0	0	0	0	44	100	0	0	44	100
51-60	0	0	0	0	5	100	0	0	5	100
61-70	0	0	0	0	13	100	0	0	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	5	4	3	2	111	93	1	1	120	100

Source: Fieldwork, 1995

7.3.5 Users' opinion about their neighbourhoods in terms of prestige

7.3.5.1 Recreation places

The word 'recreation' as mentioned previously in chapter six, has often been used to refer to activities performed outdoors, such as playing, going to the park, or visiting gardens and public spaces in general which produce feelings of comfort and well-being. Discussion with respondents revealed that recreation in the study area does not receive attention as an important community facility. In general, it was found that the design features related negatively to recreation for those people who were socializing within their neighbourhoods where there were no places such as squares, covered streets or plants, which provide the residents with an opportunity for relaxation. In the sample, 62 per cent, were dissatisfied with their neighbourhoods' recreation facilities, which were

often non-existent at the time of the survey, 22 per cent expressed no opinion, 15 per cent were satisfied, and 1 per cent made no reply (figure 7.10). It was noted that the proportion of respondents who reported feelings of satisfaction with the recreation facilities were either without children, or those who have high-income and were able to provide play equipment for their children.

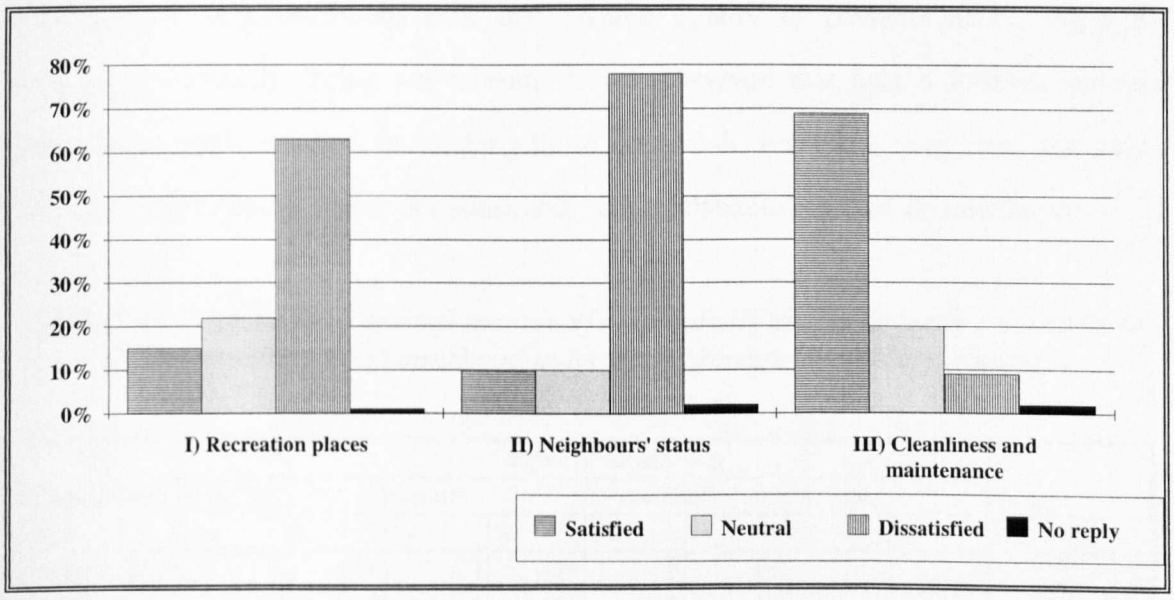


Figure 7.10: Respondents' degree of satisfaction with their contemporary neighbourhoods in terms of prestige

Source: Fieldwork, 1995

The different income categories show a difference in the level of satisfaction. Table 7.5 shows that respondents from low and middle income groups (120-300 LD) recorded a lower degree of satisfaction than the high income group (301- over 400 LD) in terms of recreation facilities. This shows that the level of satisfaction with the neighbourhoods' recreation facilities has a significant relationship with household annual income ($P < 0.050$). People with a high income are not dependent on the local recreational facilities. With their cars they are able to travel to other areas for entertainment and recreation, and

their money enables them to buy recreational equipment for their children. Those of a lower income have to use the facilities available to them, however insufficient.

Observation revealed that there is a large number of public gardens. However these places are left without any greenness or play equipment, even for young children, and are badly located in an area of stony ground that causes problems for children. Moreover, contemporary neighbourhoods lack any covered squares or covered steets which are required, particularly during hot seasons. It was observed that only a football stadium made some people satisfied, particularly those aged 20-40 years. It is very clear that a lack of sufficient recreation spaces is undesirable and is related to resident dissatisfaction.

Table 7.5: Cross table of annual income of respondents and their feeling about their contemporary neighbourhood in terms of prestige (recreation places)

Income group in LD.	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
less than 120	0	0%	1	14	6	86	0	0	7	100
121-151	0	0	5	50	5	50	0	0	10	100
151-200	2	7	10	34	17	59	0	2	29	100
201-300	4	9	9	20	32	69	1	2	46	100
301-400	6	32	1	5	12	63	0	0	19	100
Over 401	6	67	0	0	3	33	0	0	9	100
Total	18	15	26	27	75	63	1	1	120	100

Source: Fieldwork, 1995

7.3.5.2 Neighbours' status

As discussed previously in chapter six, neighbours' status is an important factor in influencing residents' satisfaction with their neighbourhood. The attempt here is to examine what measures were taken to avoid problems of neighbours' status within the contemporary neighbourhoods. Discussion with one of the oasis council (Shaikh El-mahala), revealed that the lack of similarity in social relationship and the demographic

characteristics of the household such as occupation, place of work, income level and so on helps to decrease friendly relationships between residents and reduces the homogeneity of the neighbours. Similar results are reached by other research works. Kuper (1953), for example, discovered that work relationships were a source of an appreciable number of contacts between residents.

In this sample, neighbours' status was affected by the proximity of relatives, rather than the socio-economic factors such as occupation, size of the household, age group, and annual income. Results of data analysis show that the majority, 78 per cent, recorded their dissatisfaction with their neighbours' status, 10 per cent expressed no opinion, 10 per cent were satisfied, and 2 per cent made no reply (figure 7.10). When asked about the reasons for dissatisfaction, respondents replied that most of the people and their children in the contemporary neighbourhoods spent most of their time inside their houses, to avoid problems with their neighbours and because there were no suitable areas provided for them to carry on their activities. Differences in annual income of the household create class problems, for example, children from the high income group have a very high quality of play equipment and clothes, different to the other children who come from middle or low income groups and this made them feel that they are from a higher class. This problem sometimes affects the entire household. Moreover, there is a lack of similarity in household size, with residents who have more children and therefore create more noise than the residents who have a small number of children. For the above reasons, residents found themselves isolated from their neighbours, and that created a low level of respect between residents which further increased the tension and meant that the neighbourhoods quickly became run down.

It is very interesting to notice that respondents in general were dissatisfied with their neighbourhoods in terms of neighbours' status and that means that none of the

demographic factors of the respondents was found to have a significant relationship with the level of satisfaction, particularly the age groups who were found to have a very weak relationship ($P > 0.250$). Even the young age group recorded a low level of satisfaction like other groups (appendix 21).

Observation revealed that respondents who live near neighbours with similar status were close friends and visited each other in their houses or met each other outside their houses, and their children played with one another inside their houses or in front of their houses. It is clear that they were living together as one household, for example, every weekend they gathered in one house socialising, drinking tea, or playing cards, as well as their wives and children, and that increased the respondents' level of satisfaction with their neighbourhoods. That means bonds between neighbours belonging to the same social relation or demographic character, led to a comfortable co-existence.

7.3.5.3 Cleanliness and maintenance

Neighbourhood cleanliness and maintenance levels, as discussed previously in chapter six, are clearly related to overall satisfaction. Improvement in the level of cleanliness in contemporary neighbourhoods was very obvious compared with traditional neighbourhoods. Consequently, the majority of respondents, 69 per cent, had no problems with neighbourhoods' cleanliness, 20 per cent expressed no opinion, 9 per cent were dissatisfied, and 2 per cent made no reply (figure 7.10). On the other hand, residents had some complaints about the maintenance; imported materials used in construction were not suitable for the Libyan climatic conditions or for meeting the requirements stipulated in the Libyan building standards. For example, windows are often broken because frames swell as a result of temperature changes and walls crack, steps break, taps and bathroom fittings fall off or became damaged. Residents cannot afford to repair them and sometimes the materials are not available in the local market. The author saw several

examples of walls cracking and broken taps, where the owners could not replace them and were unable to repair them. Moreover, the author observed that some roads and pavements left uncompleted became places for gathering rubbish.

Cross tabulation was used to find out the degree of satisfaction among residents of a particular age group and from a particular socio-economic group. The difference in age can give different opinions and older people, who were comparing their experience of traditional houses with the contemporary ones, were more dissatisfaction than middle aged or younger people. It is clear that the young age group recorded a higher level of satisfaction than the other groups (appendix 22).

Old aged groups, those between 61-70 years and over 70 years remarked on the need to complete unfinished site work such as roads and walkway networks which became a place for gathering garbage and were dangerous for older people and young children (figure 7.11). They also stressed the importance of growing a variety of plants so as to improve the external environment for the children playing outside. These aspects were not suggested by the other respondents, probably because they thought that the Housing Authority would eventually do it anyway.

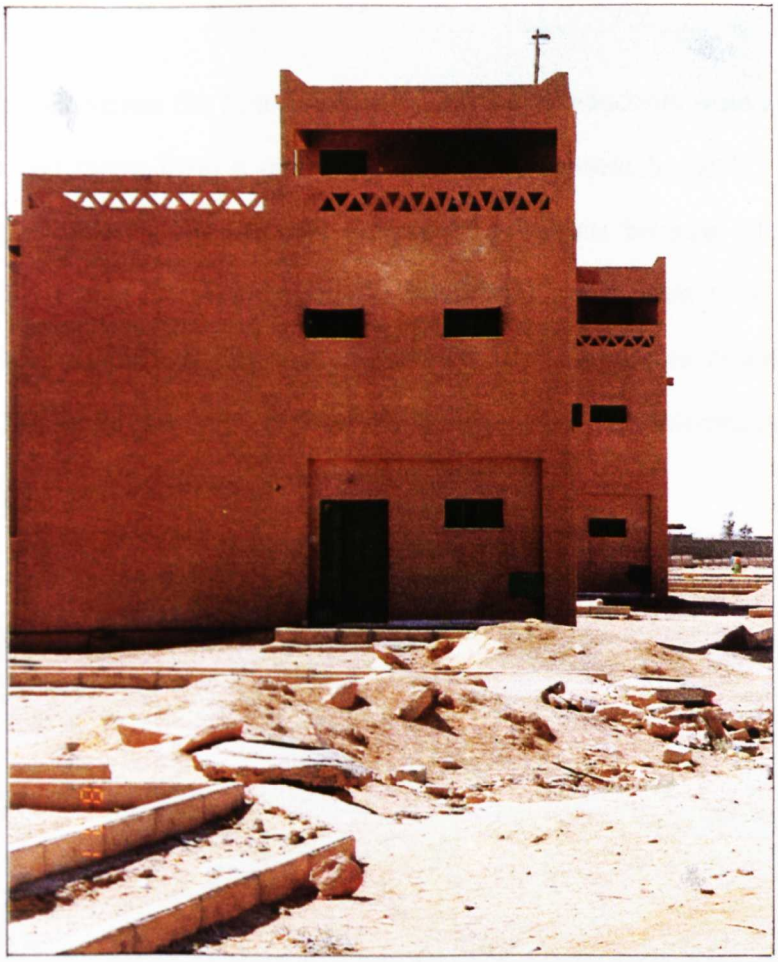


Figure 7.11: Unfinished site works roads and pavements

Source: Fieldwork, 1995

7.4 Users' Evaluation of their Contemporary Housing

In the contemporary settlement of Ghadames each house unit is characterised by an isolated structure. These houses are based on free standing forms and located on an upland in a harsh area (figure 7.12). In order to understand the suitablity of these dwellings to their users' social life needs, it is very important to find out from each household in the sample what complaints there were about their previous home so as to examine which factors caused the household to move and particularly to see what people found in their traditional homes to be sufficiently inadequate as to warrant a search for a

new home. For that reason the first question which the respondents were asked was "what reasons made you move from a previou home to the present homes?"; 97 percent had sewage system problems, 46 per cent had space problems because of the size of the household, 12 per cent had changes in the household needs such as a marriage which meant that young couples usually start married life in their parents' home and then move to a separate home, 88 per cent said the old homes needed maintenance, and 3 per cent had parking space problems (appendix 23).

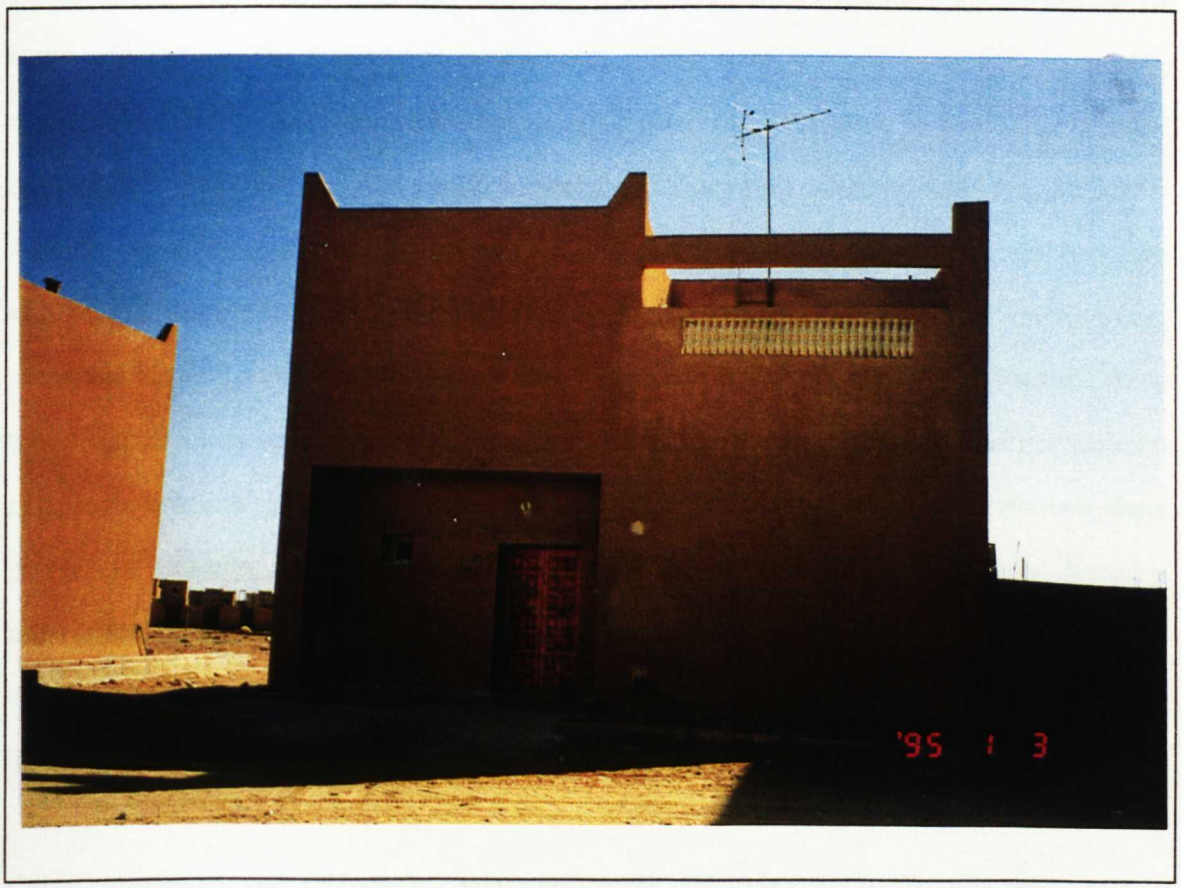


Figure 7.12: Contemporary dwelling form

Source: Fieldwork, 1995

Furthermore, residents were asked five questions in order to measure their satisfaction about their contemporary homes in terms of their socio-cultural needs. They were asked

about the opportunity they were given to choose their present homes, and how their contemporary houses fulfilled their needs for privacy, security/safety, and met their religious requirements, and satisfied their desire for prestige.

7.4.1 Users' opinion about the choice of the contemporary dwelling

7.4.1.1 Dwelling location

Respondents were asked how satisfied they were with their contemporary dwellings in terms of location. The majority of interviewees, 78 per cent, were not satisfied, 5 per cent expressed no opinion, 15 per cent were satisfied because, by chance, their dwellings were located near their relatives and public services, and 2 per cent made no reply (figure 7.13). Another measure used to examine people's dissatisfaction with their dwellings' location was to ask them about the reasons for their dissatisfaction. The reason given by users were that contemporary dwellings were located in inconvenient places at a distance from the public services such as place of employment, shopping area, mosques and particularly children's schools. Because no opportunity was given to the residents to choose their dwellings' location, there was no chance to co-operate in the way in which the housing units were distributed, and there was a lack of study about the way of distributing the contemporary dwellings. It is clear from the responses of the residents that the closer the housing to the public services, the more satisfied the people were.

Cross tabulation and Chi-square test were used and these revealed that there was a strongly significant relationship between the residents' level of satisfaction with the dwelling location and their age groups ($P< 0.050$). Table 7.6 shows that the young age group recorded a higher satisfaction than the middle and old age groups. As mentioned previously, Ghadamesian people were affected by the experience they had from the

traditional residential area. For that reason age groups have a great influence on the residents' level of satisfaction.

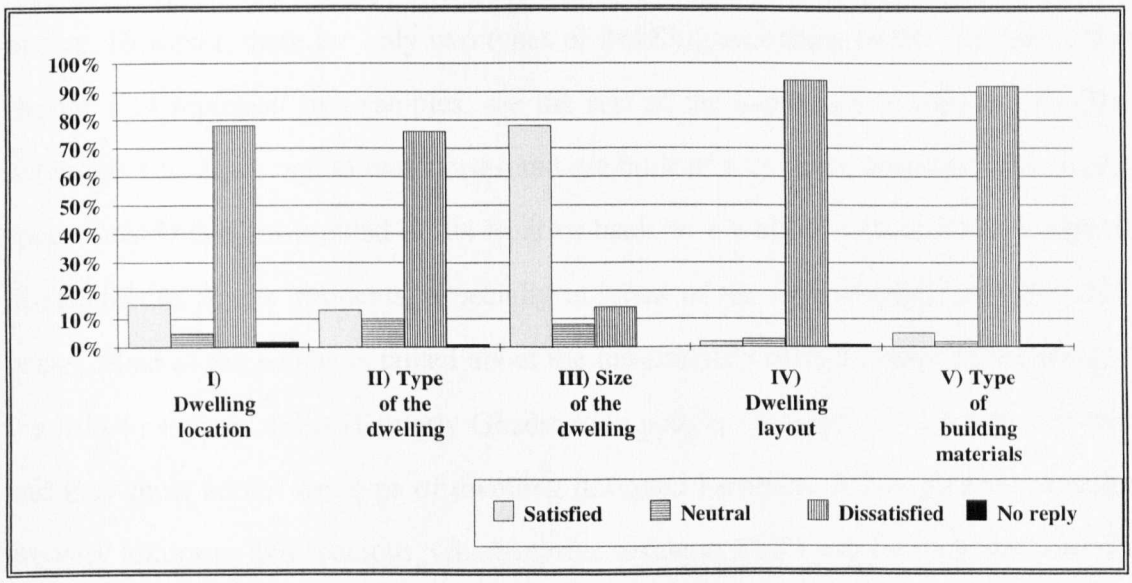


Figure 7.13: Respondents' degree of satisfaction with their contemporary dwelling in terms of the choice

Source: Fieldwork, 1995

Table 7.6: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of choice (dwelling location)

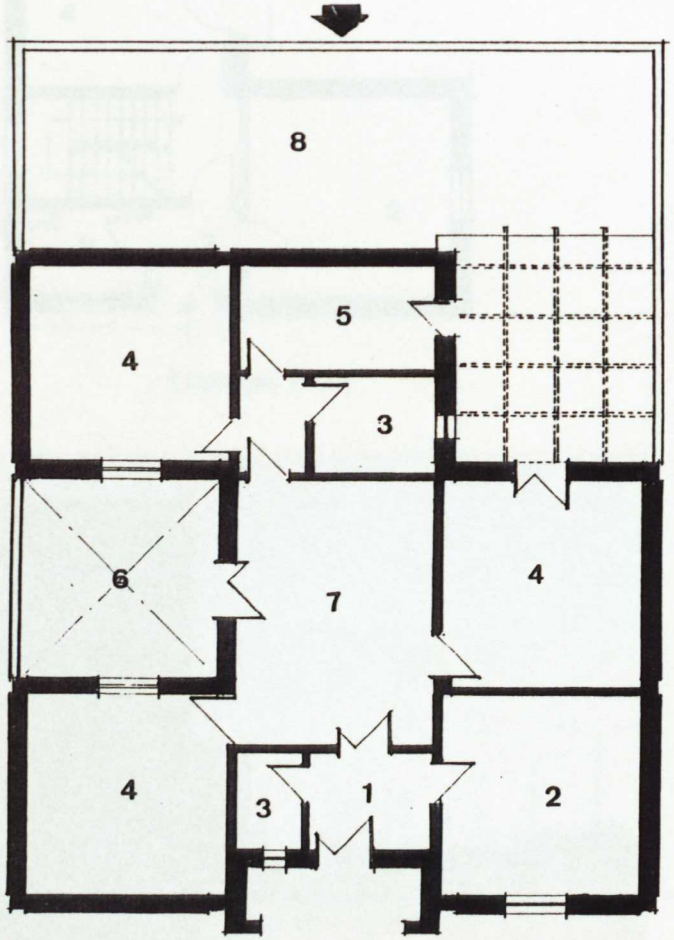
Age group	Degree of satisfaction								Total
	Satisfied		Neutral		Dissatisfied		No reply		
	No	%	No	%	No	%	No	%	No
20-30	2	67	1	33	0	0	0	0	3
31-40	9	18	4	8	36	73	0	0	49
41-50	7	16	1	2	34	77	2	5	44
51-60	0	0	0	0	5	100	0	0	5
61-70	0	0	0	0	13	100	0	0	13
Over 70	0	0	0	0	6	100	0	0	6
Total	18	15	6	5	94	78	2	2	120

Source: Fieldwork, 1995

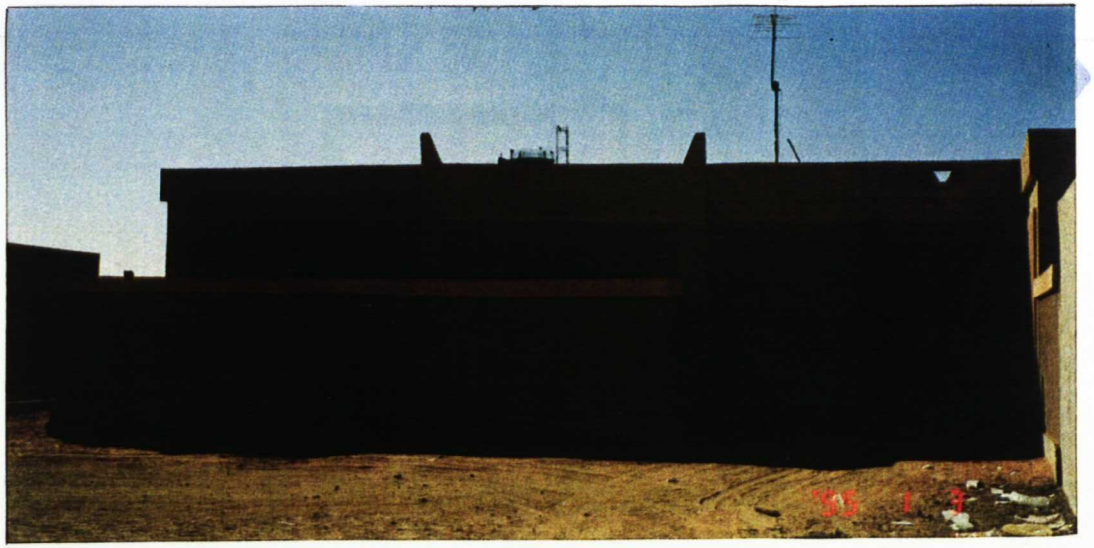
7.4.1.2 Type of the Dwelling Unit

According to the physical survey, it was found that the 616 units of the contemporary settlement of Ghadames consisted of six types of dwelling in terms of physical structure or size. However, there are only two types of dwelling according to the number of floors (figure 7.14 represent two samples, see the rest of the samples in appendix 24). These dwellings vary from one to two stories and are built of reinforced concrete, with an open space outside and surrounded on its front or back by a wall. This was a major aspect of dissatisfaction by the residents, especially in terms of the socio-cultural and way of life needs. Most of the residents talked about the unsuitability of these types of dwellings for the Libyan society and particularly Ghadmesian people. If people do not have an option and they must accept any type of dwelling designed for them. Although these dwellings are very luxurious and spacious, Ghadamesian residents find them far removed from their social life. Figure 7.13 represent users' degree of satisfaction with these dwellings typology, 76 per cent were dissatisfied with their dwellings' typology, 10 per cent expressed no opinion, 13 per cent were satisfied, and only 1 per cent made no reply.

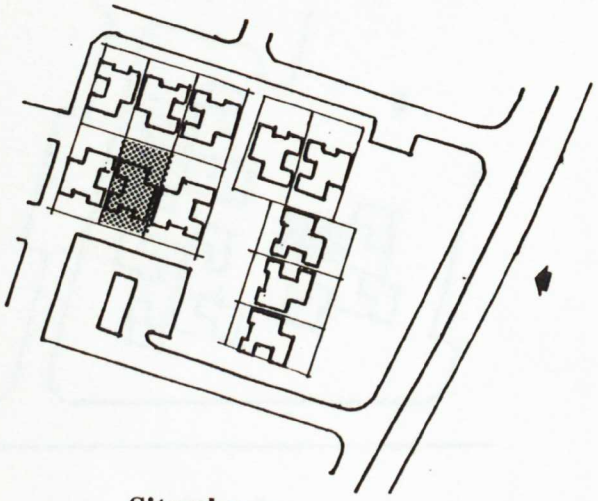
Considering the residents' socio-economic characteristics, it was found that none of these had a statistically significant influence over the head of household level of satisfaction with the type of dwellings ($P > 0.100$). For example all the age groups recorded high levels of dissatisfaction with their dwellings' typology, even those in the young age group (Appendix 25).



Ground floor



The main elevation



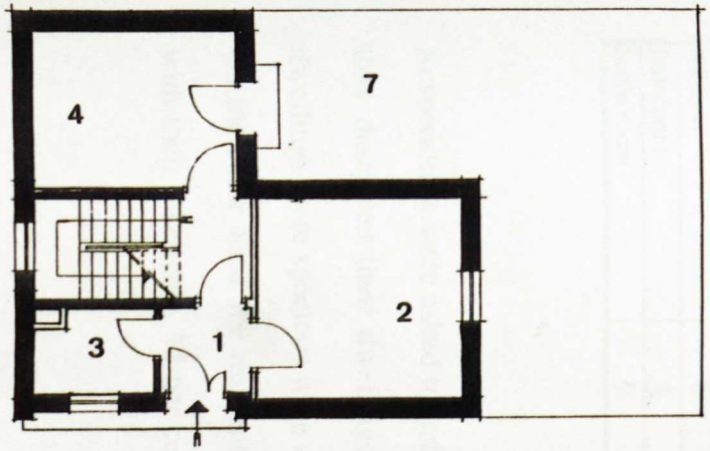
Site plan

1- Main entrance hol
2- Guest room
3- Bath room
4- Bed room
5- Kitchen room
6- Courtyard
7- Laving hole
8- Garden
Sample location

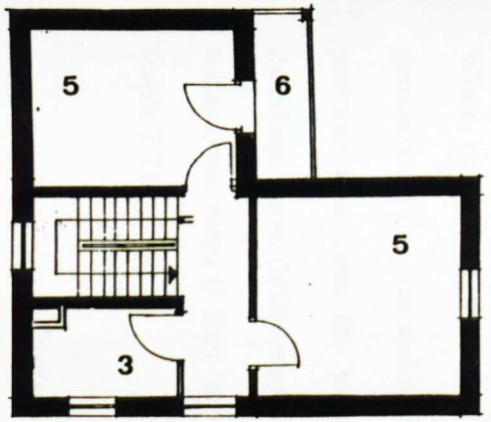
0 4m

Figure 7.14: The dwelling unit types in the contemporary residential area (cont'd)

Source: Fieldwork, 1995

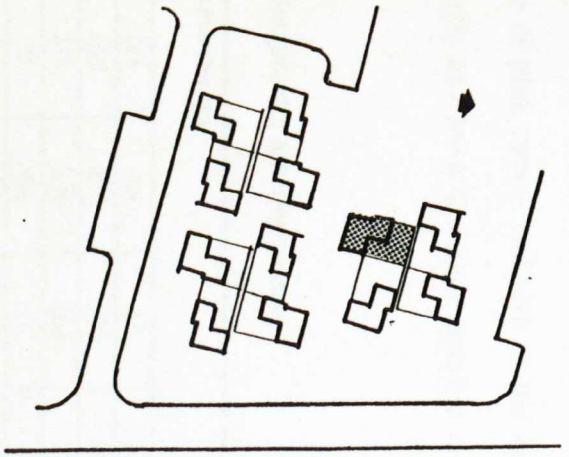


Ground floor



First floor

The main elevation



Site plan

1- Main entrance hol
2- Guest room
3- Bath room
4- Kitchen room
5- Bed room
6- Balcony
7- Garden
Sample location

0 5m

Figure 7.14: The dwelling unit types in the contemporary residential area

Source: Fieldwork, 1995

7.4.1.3 The Size of the Dwelling Unit

As one may expect, a greater number of rooms in the dwelling increases the users' satisfaction with their home's size. However, this satisfaction is also regulated by the size of the household. As the size of the household becomes larger, more rooms are needed. When evaluating the contemporary dwellings size, a physical survey was done to demonstrate the size and number of rooms in each type of dwelling. As mentioned in the previously section, the area consisted of six types of units in terms of area. These dwellings have differences in terms of size of plot, rooms and size of the kitchens and bathrooms, even if they are of the same type and have the same number of bedrooms (table 7.7).

Table 7.7: Size of contemporary dwelling units

Compnents	Area (Sq.m)					
	A1	A2	A3	A4	A5	A6
Total area	222	225	169	273	160	115
Built area	257	190	234	218	168	125
Guest room	15	20	20	16	17	17
Household living room	15	16	16	14	17	0
Bedroom	16-24	24	14-20	16	18-23	13-17
Kitchen	6	10	8	9	10	13
Bathroom	4	5	2		6	6
Store room	0	6	0	0	10	0

Source: Fieldwork, 1995

Respondents were asked to indicate their opinion of the size of their dwelling. Generally they described their dwellings as fairly spacious. Most of the users who stated their dwellings were spacious were satisfied, 79 per cent, and 8 per cent expressed no opinion. On the other hand, the residents who described their dwellings as small were dissatisfied with their dwellings, 13 per cent (figure 7.13). Further investigation was carried out to

find out more about those residents who were dissatisfied with their dwelling units. Results revealed that users complain about crowding in two-bedroom dwellings because, as mentioned earlier, the Housing Authority distributed the houses without taking into account household size; some large households live in two-bedroom dwellings and some small households live in four or five-bedroom dwellings. The kitchen size also is not enough to accommodate several activities, for example, cooking, eating meals, storing food and receiving neighbours and close relatives (females).

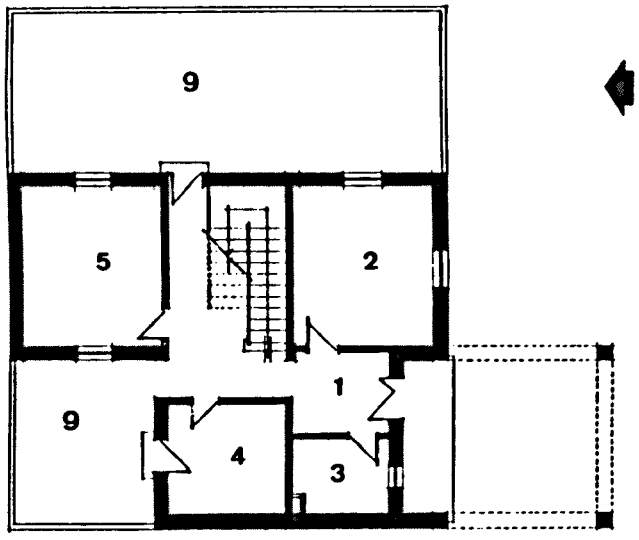
It appears, from discussions carried out, that household composition characteristics were not taken into account in the design programming phase and in the allocation process of the housing units. Household size is the most important factor in designing or distributing homes. It is clear from residents' opinions about the size of the contemporary dwellings that these were related to the density. More people with a low density rate described their dwellings as spacious than those with a high density rate. Moreover, the author observed that there was a lack of any amount of storage space in most of the dwellings and residents were dissatisfied with their homes' storage area. In addition, the number of bathrooms differed from one another, for instance, some dwellings have only one bathroom and others have more than one, some have household living rooms and others not, and all guest rooms were too small.

7.4.1.4 Dwelling layout

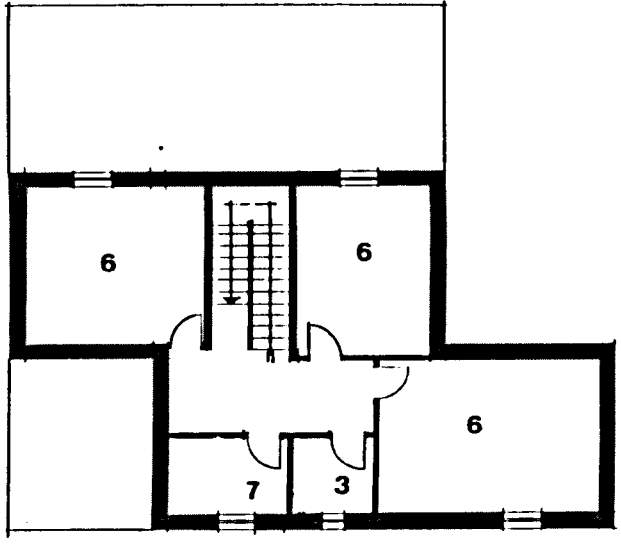
The internal layout of the contemporary dwelling was judged unsatisfactory by residents. 94 per cent were dissatisfied, 3 per cent expressed no opinion, 2 per cent were satisfied, and 1 per cent made no reply (figure 7.13). Users were critical of the contemporary dwelling layout because they felt that the guest room should not communicate visually with any other room, particularly the bathroom and kitchen, in order to provide maximum quietness for the household visitors, and more freedom for household members in terms

of movement. For example, in dwellings that have only one bathroom, females of the household cannot use it when they have a visitor, and they cannot use the main entrance. Moreover, the kitchen location was criticised because housewives in Libya and Ghadames in particular, spend a considerable amount of time in their kitchen, as the size of the household often requires the preparation of large quantities of food. Preparation of traditional food is quite a lengthy process especially for household occasions when food is prepared by a significant number of housewives working together. For that reason the kitchen location should be far from the guest room area, and women entering and leaving outside should be out of sight of the visitors (figure 7.15). Cross tabulation of age of respondent and their feelings about their contemporary dwelling layout shows that the all groups, even the young age group, recorded high level of dissatisfaction with their dwelling layout (appendix 26).

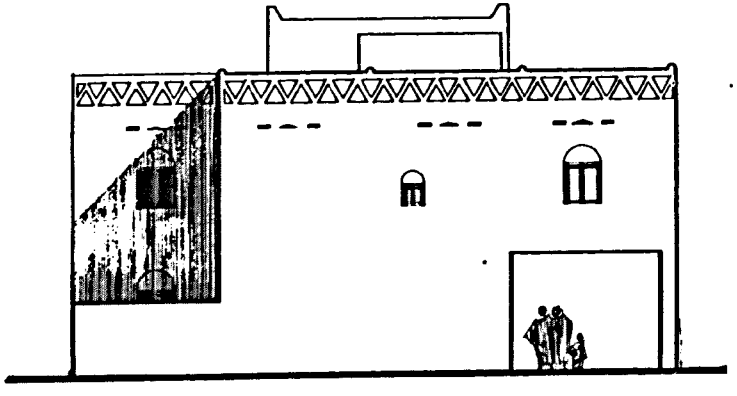
It was interesting to find that people perceived the balcony or the verandah as conflicting with their socio-cultural values. People demolished it or kept it as a window to make its use possible without compromising their social values and the survey found mothers to be reluctant to let their children play on balconies because they considered them dangerous. Other users who did not change it, allowed it to became dusty and unused. Moreover, most of the dwellings' lack of any storage space resulted in users changing some bedrooms into storage space with a bad effect upon household health and safety, for instance, people might store a spare bottle of gas in the same place as they stored food and clothes.



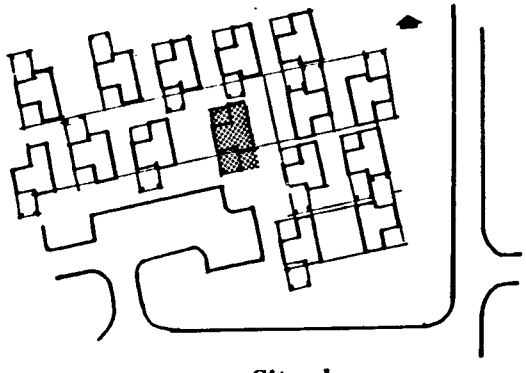
Ground floor (male visitors and female level)



First floor (household sleeping area)



The main elevation



Site plan

1- Main entrance hol
2- Guest room
3- Bath room
4- Kitchen room
5- Laving room
6- Bed room
7- Stor room
8- Garden
Sample location

0 5m

Figure 7.15: Layout of contemporary dwellings

Source: Fieldwork, 1995

7.4.1.5 Type of building materials

The majority of interviewees, 92 per cent, were not satisfied with the new building materials used in their contemporary dwellings, 2 per cent expressed no opinion, 5 per cent were satisfied, and 1 per cent made no reply (figure 7.13). Respondents were asked why they considered the materials unsatisfactory and it was noted that no opportunity was given to them to choose or co-operate in the decision to select the building materials. Respondents said that the new building materials were not good quality in terms of suitability for the country's climatic conditions, they had no experience of them and no attempt was made to educate the respondents before they took up residence. That caused many dwellings to suffer from cracks in the walls and slabs, window glass to break, bathroom fittings to fall off or become damaged. When this happens, residents, who lack basic skills, cannot afford to repair them and find replacements or this tends to make the situation harder to deal with.

Observation revealed that respondents are often unfamiliar with the kind of fittings they find in the kitchens and bathrooms and damage is caused through misuse. Women sometimes do not know how to use some equipment in their kitchens such as new cookers, because they do not understand how to use them, or they find them inadequate particularly for cooking traditional food. Moreover, new building materials are regularly unavailable in the local market and their cost is very high and as there is a lack of experience about how to deal with these new building materials residents who are used to traditional methods in solving their constructions' problems find these materials inappropriate for the new house's construction methods.

Considering the residents' demographic characteristics, their satisfaction with the building materials used in their homes was found to be significantly dependent on their age group

(P< 0.001). Satisfaction with current building materials is affected by the level of the previous dwelling experience, old and middle age groups who have more experience were less satisfied than the younger age group who have no experience about previous local building materials (table 7.8).

Table 7.8:Cross table of age of respondents and their feeling about their contemporary dwelling in terms of choice (dwelling building materials)

Age group (Years)	Degree of satisfaction								Total
	Satisfied		Neutral		Dissatisfied		No reply		
	No	%	No	%	No	%	No	%	No
20-30	2	67	0	0	1	33	0	0	3
31-40	4	8	2	4	43	88	0	0	49
41-50	0	0	0	0	44	100	0	0	44
51-60	0	0	0	0	5	100	0	0	5
61-70	0	0	0	0	12	92	1	8	13
Over 70	0	0	0	0	6	100	0	0	6
Total	6	5	2	2	111	92	1	1	120

Source: Fieldwork, 1995

7.4.2 Users' opinion about their dwellings in terms of *Security*

7.4.2.1 Attempted Break in

It is believed that the sense of safety from burglary and the feeling of being adequately protected corresponds to satisfaction with one's residential environment and the people who live there. Libya has low burglary and crime rates compared with other countries in the world because of the strict enforcement of socio-cultural values such as religion. Indeed it is true, as mentioned in chapter six, respondents recorded high levels of satisfaction with their traditional houses where they lived in the past. However, the situation today is that people are living in contemporary houses whose design beans no relation to their socio-cultural values. This means that their dwelling is in conflict with

their beliefs and social relations and has resulted in a decrease in the privacy, security and prestige. The question which arises is "how do users feel about their contemporary dwellings in terms of attempted break in?". Residents were asked, during a survey investigating "security", about their concerns with regard to the event of a break in or burglary of their dwellings. 93 per cent were dissatisfied, 6 per cent expressed no opinion, only 1 per cent were satisfied (figure 7.16). Respondents said that since they had moved to the contemporary dwellings many unpleasant events had occurred because many houses had been entered illegally and their goods were stolen. The evidence showed that people reinforced doors, windows and added metal doors that made their houses like prisons (figure 7.17). The main causes of this problem, which were often mentioned, were that the respondents' neighbours were gathered randomly and there was a lack of propinquity between them, or a lack of similarity in socio-economic factors and this resulted in a decrease in security and made residents unable to know the guilty people or to control their surroundings. Maguire (1982:20) noted this fact, "social class and tenure-type have been found to be the most important factors associated with crime rates". For instance, the habit of neighbours helping each other in difficulties and looking after the neighbour's house when they were absent, experienced in the traditional houses, completely collapsed in the contemporary housing area. Furthermore, contemporary dwellings lack plants and trees within or around them and that decreased the respondents' sense of security. The findings suggested that propinquity is an effective factor increasing security in residential communities.

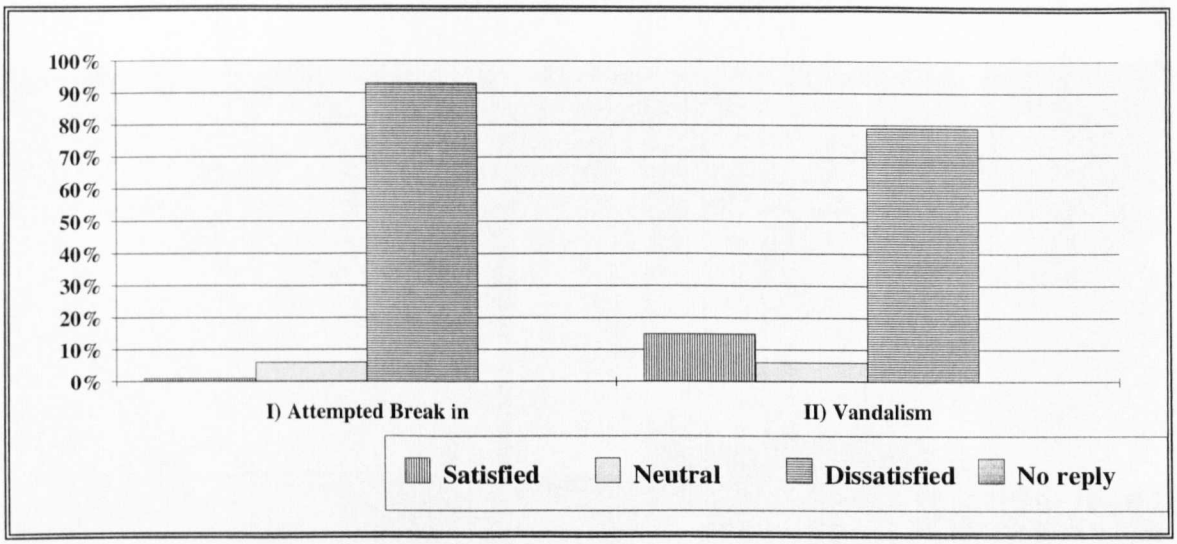


Figure 7.16: Respondents' degree of satisfaction with their contemporary dwelling in terms of security

Source: Fieldwork, 1995

The cross tabulation analysis of the satisfaction of the residents with the security within their dwellings showed that the young age group recorded a high level of dissatisfaction like other groups (table 7.9). This means contemporary dwellings do not answer their users' security needs.

Table 7.9: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of security(attempted break in)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	0	0	3	100	0	0	3	100
31-40	0	0	4	8	45	92	0	0	49	100
41-50	0	0	3	7	41	93	0	0	44	100
51-60	0	0	0	0	5	100	0	0	5	100
61-70	0	0	0	0	13	100	0	0	13	100
Over 70	0	0	0	0	5	83	1	17	6	100
Total	0	0	7	6	112	93	1	1	120	100

Source: Fieldwork, 1995

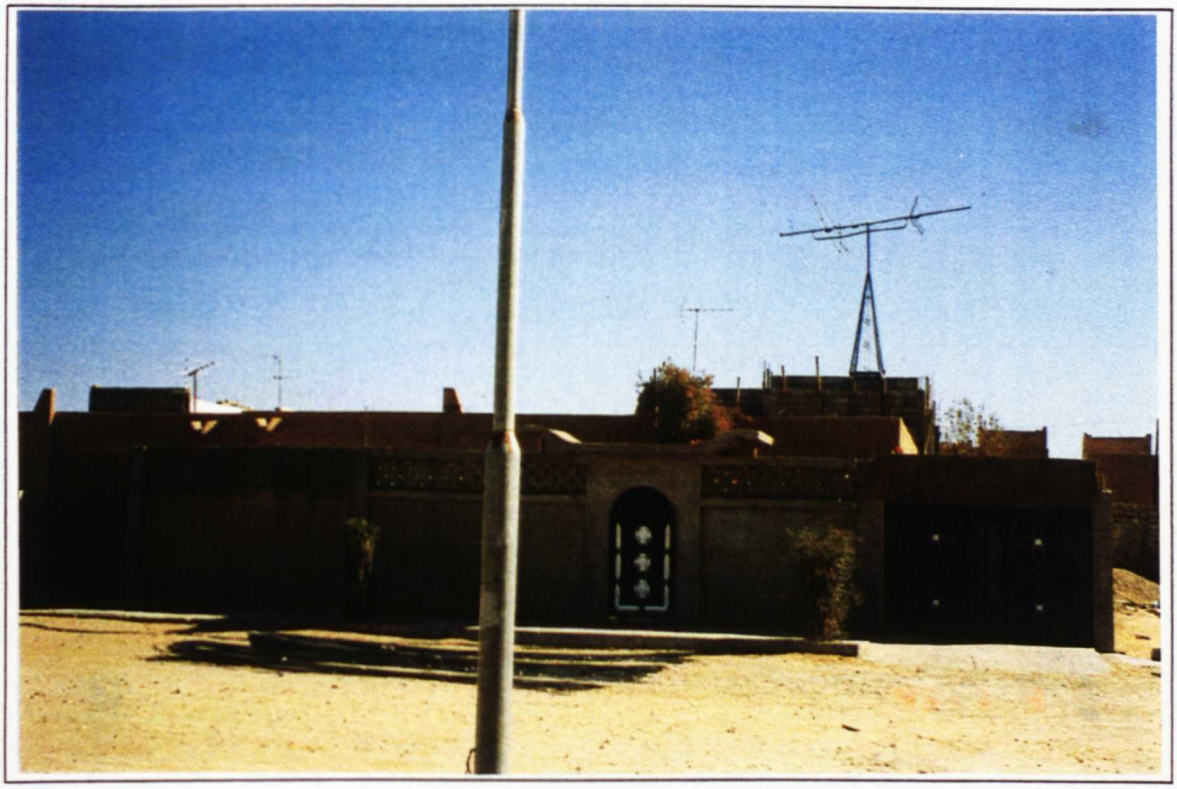


Figure 7.17: Security measures

Source: Fieldwork, 1995

7.4.2.2 Vandalism

Most housing evaluation studies indicate that problems associated with children's play are one of the most frequent subjects of complaints from residents (Cooper, 1975; Cooper & Sarkissian, 1986; and Lansing ***et al***, 1970). However, this study revealed that residents' level of satisfaction with their dwellings in terms of vandalism was found to be affected mainly by the arrangement of external space, such as the location of children's play areas. Vandalism coming from children was found to be a major source of complaint among residents in the study and took the form of damage to window glass, or to plants in gardens as a result of plying football or fighting each other. Statistical analysis of the respondents' feeling about vandalism shows that 79 per cent were dissatisfied, 6 per cent

expressed no opinion, 15 per cent were satisfied (figure 7. 16). All users described their dissatisfaction as a result of the lack of proper children's play areas, causing unnecessary friction with nearby residents. However, people who are satisfied with their dwelling are far from children's play areas and so have no complaints. None of the residents' demographic factors had a statistically significant influence on the level of satisfaction ($P > 0.250$). Both the old and young age groups were dissatisfied with their contemporary dwellings in terms of vandalism (appendix 27).

7.4.3 Users' opinion about the privacy

The influence of the physical characteristics of the dwelling design on users' privacy, as perceived by the respondents will be discussed here. Three types of privacy were of concern of the residents, visual, acoustic and privacy coming from street and neighbours.

7.4.2.1 Visual privacy

The physical characteristics of the contemporary dwelling in relation to visual privacy were studied during the physical survey. It is clear that no attention was given to this type of privacy when the houses were designed, e.g. the segregation of female and male areas. When the main doors are located very close to the male guest room, it means that any member of the household entering or leaving the dwelling can be easily overlooked by those in the guest room. This particularly affects women in the kitchen and the bathroom, which are very close to the guest room, especially in those dwellings with only one bathroom. There is no provision for women's visitors, unlike traditional house design (figure 7.18).

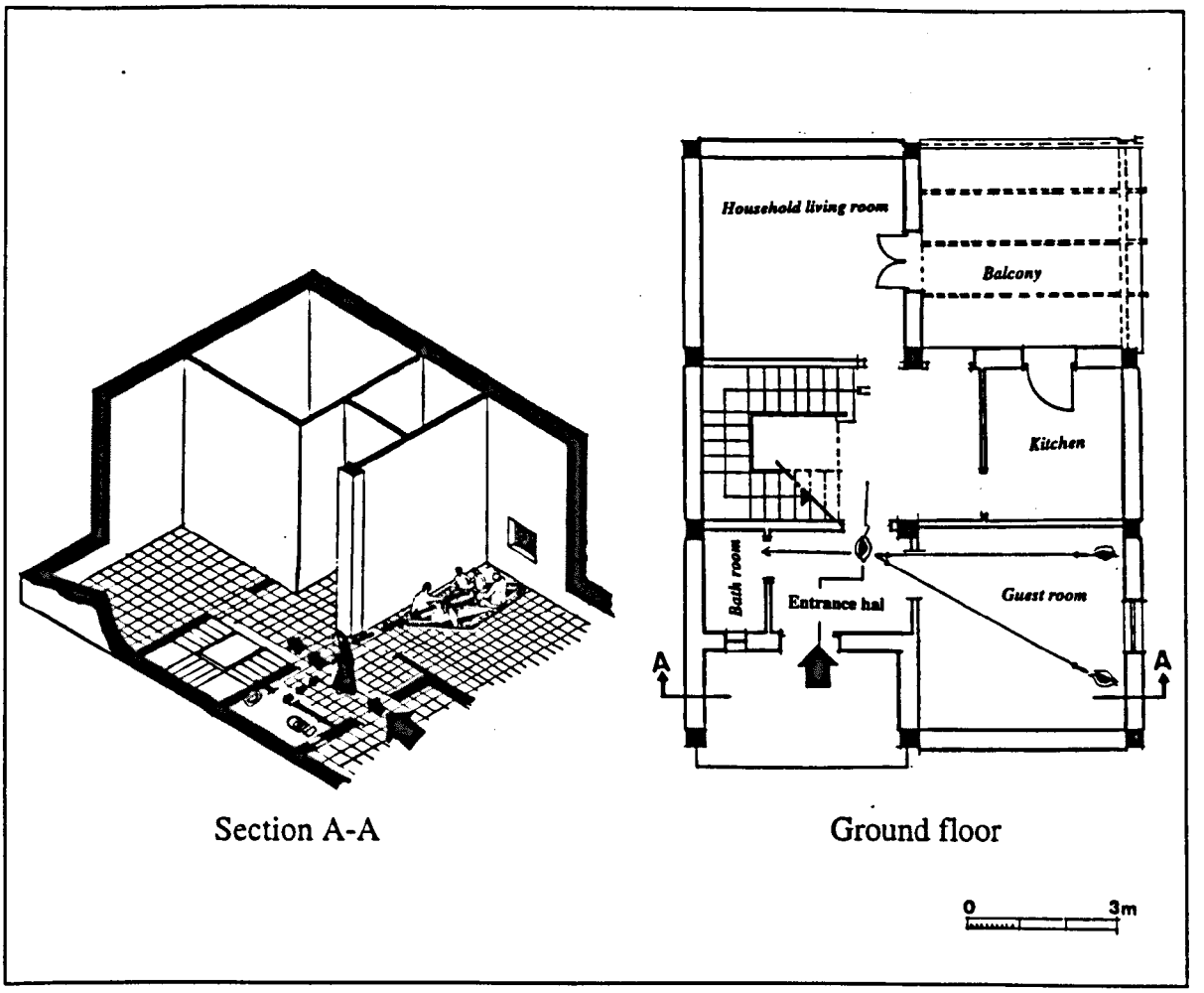


Figure 7.18: Visual privacy in contemporary dwelling

Source: Fieldwork, 1995

Statistical analysis, used to examine the level of satisfaction of the inhabitants with visual privacy in their homes, indicated that contemporary dwellings generally afford little visual privacy and 92 per cent of the respondents found this unsatisfactory, 2 per cent expressed no opinion, and only 6 per cent were satisfied (figure 7.19). Respondents were asked about the source of dissatisfaction and it was noted that space arrangement strongly influenced their opinion about the home design. Significant design aspects were found to be related to this type of privacy, particularly the arrangement of the interior space for example, the location of the main entrance, kitchen and bathroom at the same level in

close proximity to the guest room, and the lack of a room for female visitors. All of these caused considerable psychological discomfort due to the loss of visual privacy. However, residents who recorded some satisfaction, had taken some measures to avoid visual privacy problems, for example, some bedrooms were changed into a room for women's visitors, and the guest room entrance and size was changed, andanother bathroom added.

Considering the residents' demographic factors, it was found that only the age group factor and the head of household's level of satisfaction with the visual privacy of his household where significant (P = 0.025). For example, the young age group were more satisfied with their homes' visual privacy than the middle and old age groups (appendix 28).

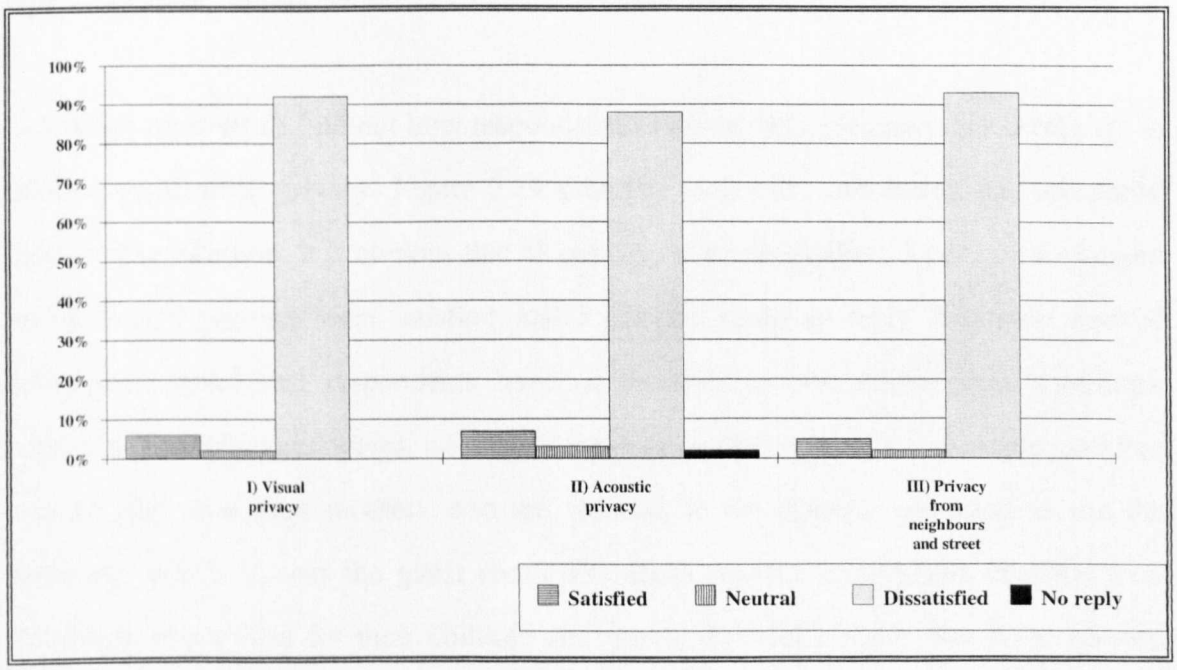


Figure 7.19: Respondents' degree of satisfaction with their contemporary dwelling in terms of privacy

Source: Fieldwork, 1995

7.4.3.2. Acoustic privacy

It is important to ensure that the visitor does not overhear what the women and children are saying in their parts of the house. This fact can be observed in the traditional houses where there is a clear distinction between the men's domain and the women's domain. However, this emphasis on the need for acoustic privacy is ignored in contemporary houses. As is the separation between the male guest quarter and the household female quarter. This was evident in the location of the kitchen and main entrance which were close to the guest room, sometimes guests and household female members were sharing one bathroom, and there was a lack of any space for women's visitors. That means the plan is not flexible and does not allow users the freedom to talk privately particularly when they have visitors.

Questions were set to find out how respondents evaluate their contemporary dwellings in relation to acoustic privacy. Figure 7.19 provides responses concerning the occupants' degree of satisfaction. It is obvious that 88 per cent were dissatisfied, 3 per cent expressed no opinion, 7 per cent were satisfied, and 2 per cent made no reply. The most marked complaints stated that respondents have no freedom to talk within their dwellings, particularly children and wives, because of the presence of visitors. For example, children usually play near their mothers who are working in the kitchen, and need to use the bathroom which is near the guest room. For these reasons respondents describe their dwellings as a prison for their children and wives, especially when they have visitors. This fact is stated by Jourard (1966: 314) who spoke of the lack of privacy "this leaves the users of such designs with a feeling of being in prison or in an impersonal physical environment", which means the arrangement of the habitable space provided for sleeping,

sitting, eating, washing, gathering, celebrating and receiving guests has a great influence on residents' level of satisfaction and needs to be of more concern to the architect.

7.4.3.3 Privacy from neighbours and street (Noise & Views)

The third aspect of household privacy is protection from the noise and view of neighbours and passers-by. When asking the respondents about their satisfaction with the fulfilment of this privacy need, it was found 93 per cent were dissatisfied, 2 per cent expressed no opinion, and only 5 per cent were satisfied (figure 7.19). In order to find out, what the most effective elements influencing the residents' feeling about this type of privacy, respondents were asked to identify the sources of dissatisfaction. They noted that the primary sources of the noise were children playing, the voices of neighbours in other dwellings and noise from traffic. These factors were also found as sources of complaint in many relevant studies such as that of Gutman (1966) who has suggested that noise from children's play outside and from other dwellings, such as entertainment equipment or inarticulate voices, when not accompanied by a more civilised form of communication and contact, accounts for much of the nuisance and dissatisfaction reported by the occupants. Users also complained about being overlooked, whether by neighbours or passers-by. The sill height of the major rooms' windows in the dwellings ground floor was about 1.30m above street level, putting the inside of the dwelling within eye sight of most passers-by, as well as neighbours from other dwellings. This caused privacy problems for all the rooms which were located on the ground floor, particularly the guest room and kitchen. It has been revealed in a number of studies that ground floor dwellers often have complaints about privacy when neighbours and passers-by can easily look inside their dwellings (Cooper, 1975 & 1986; Mulvihill, 1977; and Coulson, (1980).

Observation revealed that a lack of proper design for the external areas around the dwellings, and the location of the play areas immediately outside the dwellings without any barrier or buffer zone, is likely to be the reason for respondents' complaints about noise from children's play. Moreover, when the ground floor windows are open, the interior of the dwellings is easily overlooked by the passer-by and by the opposite dwellings. This seems to indicate that too much contact and too much exposure of information about the inhabitants to others is likely to result in self-withdrawal, if not conflicts with neighbours and is the reason why most people wished to move out of the dwellings under study.

The influence of the demographic factors of the respondents on the level of privacy from neighbours and street can be shown. The data analysis has revealed a significant correlation between respondents' age group and level of satisfaction ($P < 0.000$). Residents might have been influenced in this by their previous housing experience because old and middle aged groups are less satisfied than the young age groups (table 7.10).

Table 7.10: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of privacy (privacy from neighbour and street)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	4	8	2	4	43	88	0	0	49	100
41-50	0	0	0	0	44	100	0	0	44	100
51-60	0	0	0	0	5	100	0	0	5	100
61-70	0	0	0	0	13	100	0	0	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	6	5	2	2	112	93	0	0	120	100

Source: Fieldwork, 1995

7.4.4 Users' opinion about their dwellings in terms of religion

Islam gives no specific recommendations or rules about how to design or build houses, but leaves these matters to choice. However, the basic principles and guidelines of the building process and its framework were derived from the spirit of Islam. The impact of religion on the man-made environment was obvious and can be observed in Islamic cities. For example, in Ghadames religion was understood by those who built traditional houses as a set of guidelines which shaped their lives and consequently their built environment. Most of the design features of those traditional houses and their surroundings were ignored in contemporary dwelling design. For that reason this section deals with residents feeling about their contemporary dwelling in terms of religious response. Respondents were asked two questions relating to religion in dwellings: dwelling orientation and relation with mosque.

7.4.4.1 Dwelling orientation

Respondents are not concerned too much about their dwellings' orientation in terms of religious needs. However, priorities are given to orientation of the main entrances, windows and bathroom 'siphonic water closets'. Statistical analyses were used to measure users' level of satisfaction; 54 per cent were satisfied with their dwellings, in terms of religious response, 7 per cent expressed no opinion, 37 per cent were dissatisfied, 2 per cent made no reply (figure 7.20). Respondents' complaints recorded during the survey showed dissatisfaction because most of the dwellings' main entrances were facing each other and that is not the right direction in terms of religion. There were also complaints about not being able to hear the call for prayer from the mosque (El-Athan) because some dwellings have no opening towards the mosque. Another feature to be investigated in the design of the contemporary dwelling is the bathroom 'siphonic' orientation. The user of the bathroom, who wishes to show respect for his religion, needs to make sure that he

does not turn his back or face in the direction of the holy Makkah. This means that the water closets must be correctly positioned, and facilities must also be in accordance with his religious needs. Residents might have been influenced in this by their previous housing experience, as all baths and washing places were located in the mosque.

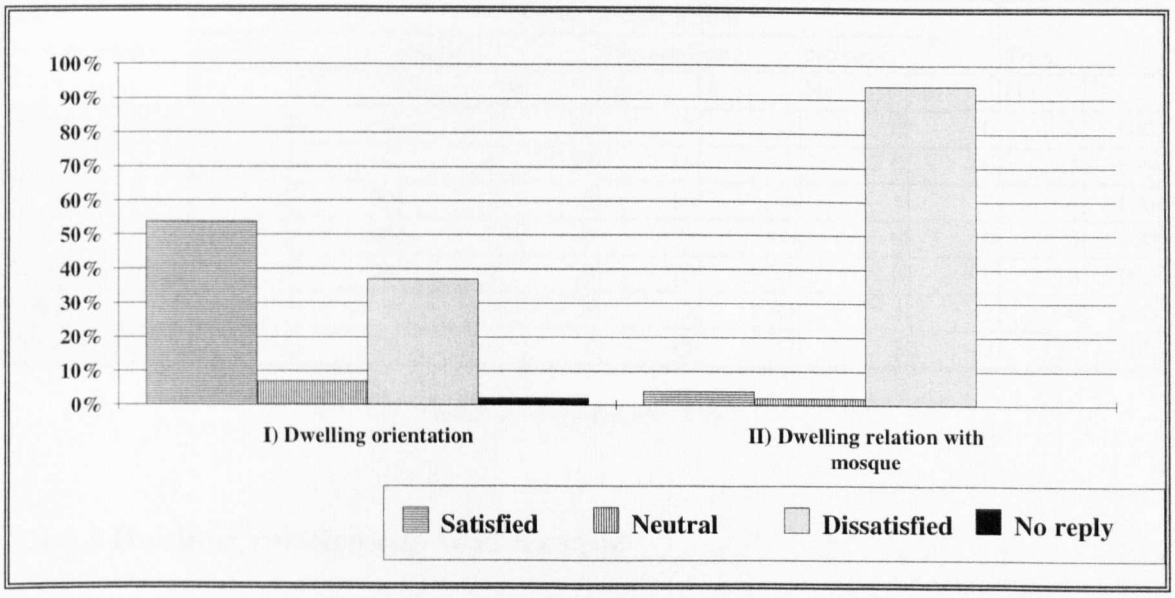


Figure 7.20: Respondents' degree of satisfaction with their contemporary dwelling in terms of religion

Source: Fieldwork, 1995

It is more interesting to mention that some informants complain about their houses' main entrances which open in the west direction, because they regard the west as the direction of death. This fact is also mentioned by Nour (1979:20) who noted that the majority of Egyptians today still regard the west direction as the direction in this way. "Peasants in Egypt do not sleep with their heads in the western position and would try, if at all possible, not to open the entrance of their houses to the west direction". Islam does not lay down any recommendations about the direction in which believers should sleep or open the entrances to their houses. The fact that some people in Arab countries still practise this habit is the result of ancient superstition or folklore. Furthermore, it is very surprising

that whilst young age groups recorded no satisfaction with their contemporary dwelling, the other groups recorded some satisfaction (table 7.11).

Table 7.11: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of religion (dwelling orientation)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	1	33	2	67	0	0	3	100
31-40	29	59	5	10	15	31	0	0	49	100
41-50	31	70	2	5	10	23	1	2	44	100
51-60	2	40	0	0	3	60	0	0	5	100
61-70	3	23	0	0	10	77	0	0	13	100
Over 70	0	0	0	0	5	83	1	17	6	100
Total	65	54	8	7	45	37	2	2	120	100

Source: Fieldwork, 1995

7.4.4.2 Dwelling relationship with mosque

As reviewed in chapter three the main characteristics of the Muslim houses were their concentration around the mosque and their strong relation with the mosque. This fact can be seen in the traditional houses in Ghadames, as mentioned previously in chapter six. Ghadamesian traditional houses were found to have a strong relation with the mosque and that is why their users recorded a high level of satisfaction. However, what about the Ghadamesian contemporary houses which conflict with the traditional houses? This question is answered in this section. Statistical analyses were used to find out what users' feelings were about their contemporary dwellings in terms of relation with the mosque. Data analysis showed that the majority, 94 per cent, were dissatisfied with their dwellings, 2 per cent expressed no opinion, and 4 per cent were satisfied (figure 7.20).

A discussion was held with the users in order to understand the reasons for dissatisfaction. Ghadames people are very religious, reading the Koran regularly in the mosque, particularly when they have a death, or religious occasion and they prefer to pray as a group during all the five prayers. For that reason they described their contemporary dwelling design as a failure. There is no close relation between the mosque and the contemporary dwelling and this causes dissatisfaction and a movement away from daily worship and religous practice. For example, it is very difficult to hear the callings for prayer from the mosque, particularly where there is no electricity, and they cannot make the early morning prayer, especially the old people, because the mosque is far from most of their houses. The old and middle aged groups, those between 41 to over 70 years, who regularly go to the mosque for prayer and read the Koran, and had more experience of their previous houses, recorded extreme dissatisfaction with their contemporary houses. However, the young age group recorded some satisfaction because they do not so to the mosque and had no experience of previous houses (appendix 29).

7.4.5 Users' opinion about their houses in terms of prestige

7.4.5.1 Quality of dwelling in terms of space and building materials

As mentioned previously, residents in Ghadames were more concerned about the interior space than exterior because of the climatic conditions. Residents described their contemporary dwelling as spacious and as having a good sewage system but very weak in terms of space organisation. For that reason their level of satisfaction with the dwellings was found to be affected mainly by the size of the guest room, rather than of other rooms, space for female household members and visitors, storage area, and kitchen location. As Cooper (1975) found in her study of "Easter Hill Village" the size of rooms in relation to activities, is, in its turn, affected by the household life style and status. 53 per cent were

satisfied with their dwelling and noted some problems, 7 per cent expressed no opinion, 38 per cent were dissatisfied, and only 2 per cent made no reply (figure 7.21).

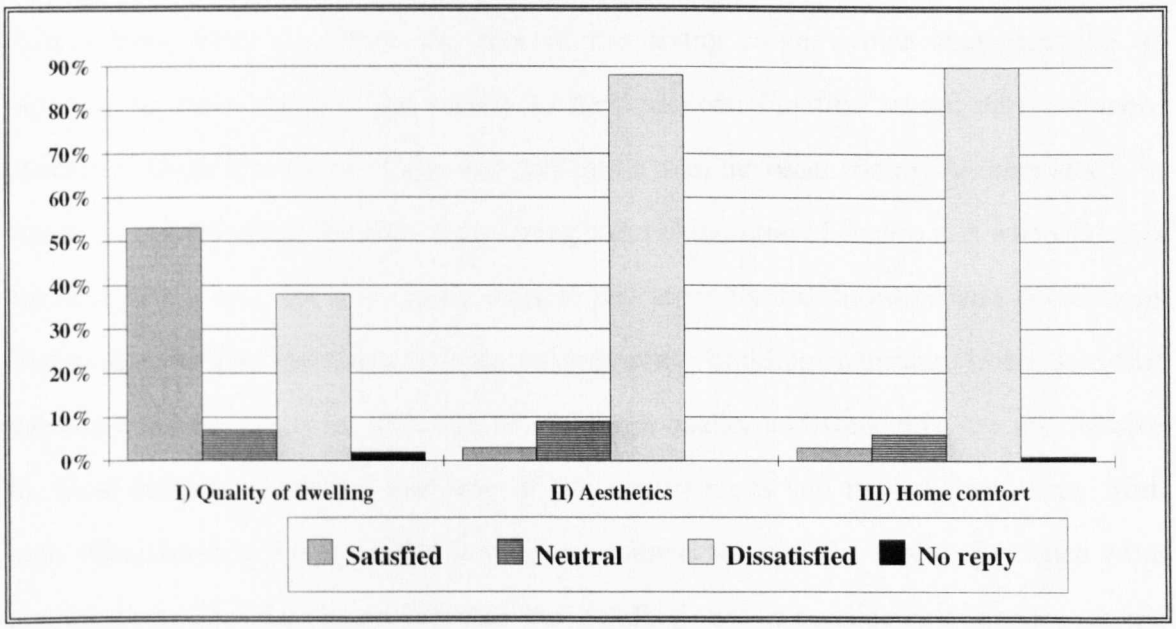


Figure 7.21: Respondents' degree of satisfaction with their contemporary dwelling in terms of prestige

Source: Fieldwork, 1995

People who were moved from traditional houses to contemporary houses thought they were moving to a better quality built environment because the level of satisfaction with the contemporary dwelling is affected by the experience of the traditional houses. Francescato (1975) stated that the level of satisfaction with the current dwelling is affected by the individual's experiences of previous dwellings, and how much the current one, as perceived by the resident, is an improvement on the previous one. For example, a respondent complains about the kitchen where, in the traditional house the housewives spend the most time, entertaining relatives or having coffee with neighbours during the day. However, today, in the contemporary dwellings they cannot do this because it is

inappropriate owing to the location of the kitchen. Willis (1963a) stated in her study that the kitchen should be separate and shut off from the other rooms.

Respondents complain about the size of the living room, which they describe as representing their status in the society to their visitors. For that reason they are more concerned about it in terms of size and decoration than the other rooms. Another study, in America, indicated that the size of the living room is important because it is where friends are entertained and, for this reason owners pay more for the furniture and decorations (Rainwater, 1966). They also criticise contemporary building materials. Users said that modern building materials, although of very high quality and standards, are not suitable for local climate conditions and way of life requirements and moved them away from high Ghadamesian house quality which was known all over the world. Evidence from empirical studies also suggested that the dwelling has a considerable impact on the quality of users' lives generally (Rainwater, 1966; Menchick, 1972). The author observed that most of the respondents who recorded satisfaction with their dwellings had made changes to their dwellings, such as increasing the guest room area. Cross tabulation analysis was used to find which of the residents' demographic characteristics had an effect on the level of satisfaction. None of them had as impact except the age group which was found to have a strong influence ($P < 0.010$). For instance the young age group recorded a higher level of satisfaction than the middle and old age group (table7.12).

Table 7.12: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of prestige (quality of dwelling in terms of space and building materials)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	3	100	0	0	0	0	0	0	3	100
31-40	30	61	2	4	15	31	2	4	49	100
41-50	26	59	2	5	15	34	1	2	44	100
51-60	1	20	1	20	3	60	0	0	5	100
61-70	3	23	2	15	8	62	0	0	13	100
Over 70	1	17	1	17	4	66	0	0	6	100
Total	64	53	8	7	45	38	3	2	120	100

Souce: Fieldwork, 1995

7.4.5.2 Aesthetics

From the survey it can be seen that the choice of building materials, colours, textures and the amount of greenery surrounding and inside dwellings, was found to be closely linked with residents' level of satisfaction. Cooper & Sarkissian (1986) also stated that building materials and colours influence the character of the views, though the choice of the colours varies according to culture and region. Good views from those rooms most often used during the day, i.e. the living room, the kitchen and upper roofs, were found to be a very important factor influencing residents' satisfaction with their housing environment. Views with particular characteristics, such as those with grass and trees, have been shown to influence attitudes towards the attractiveness of the views (Cooper & Sarkissian, 1986). However, this study showed that views of yellow walls, wide asphalt roads and salt marsh areas lacking greenness tended to be disliked by people. Figure 7 provides a clear picture of repondents' feelings about their contemporary housing's aesthetic values. The majority, 88 per cent, were dissatisfied because they said it had destroyed their socio-cultural values and their identity. However, 9 per cent expressed no opinion, and only 3 per cent were satisfied (figure 7.21).

7.4.5.3 Home comfort in terms of climate

The dwelling is the place where most of the time is spent, the inadequate comfort conditions affect the qualities of life of the people, productivity and development of the community as a whole. The design of dwelling therefore needs an understanding of the conditions of comfort and the type of climate dealt with. Responses to local climatic conditions and the way of life can reduce the effect of the hostile climate. However, this may seem a rather difficult task to achieve in most contemporary housing in Ghadames, without using mechanical devices, because they have been designed without consideration for either the local climate or the way of life (Sawesh, 1992).

Residents were also asked if they had any problems with their dwellings in terms of climatic condition. 90 per cent were dissatisfied and had problems. Respondents were critical of the dwellings' design, use of materials, openings and orientation which all contributed to the uncomfortable climatic conditions in the dwellings. For example, they cannot live in their contemporary houses without air-conditioning, particularly during hot days and it is very cool on cold days. People who cannot afford such devices have to endure very harsh climatic conditions and uncomfortable living environments. However, sometimes they solved this problem by going back to their traditional houses during hot times, which provide a naturally comfortable environment. 6 per cent expressed no opinion, 3 per cent were satisfied because they have mechanical devices in their houses, and only 1 per cent made no reply (figure 7.21). Cross tabulation analysis was used to examine which socio-economic factors influence the users' level of satisfaction. The data shows that none of these factors had an effect on people's level of satisfaction ($P > 0.100$), all groups in the sample recorded high levels of dissatisfaction with their dwellings (appendix 30).

7.5 Residents' Mobility in their housing environment

Twenty-six variables were examined in order to assess users' satisfaction with their contemporary housing environment in terms of response to their socio-cultural needs. This section endeavours to identify the variables which contributed to the degree of satisfaction or dissatisfaction with contemporary housing environment, the "Index of satisfaction". This index is the measure of the relative weight attached to a variable by all the respondents taken together (Awotona, 1988:85). In addition the author trys find out respondents' efforts to improve their housing's social environment and their feeling about the modification they did within their dwellings and whether it had a negative or positive influence on their social life.

7.5.1 Index of satisfaction

Computation of the index of satisfaction: The first step in the computation of the index of satisfaction (**I S**) is to express the percentage frequencies for each variable, in the three response categories (Satisfaction, Neutral and Dissatisfaction) decimally. For example, if one takes the response to the question about satisfaction with the settlement in terms of social life (variable 25) as an example, Satisfactory (0%) = 0.00; Neutral (6%) = 0.06; Dissatisfaction (94%) = 0.94.

The second step is to assign the following weights to each of the response categories; +1 for satisfaction; 0 for neutral; and, -1 for dissatisfaction. The decimal value in each response category is then multiplied by the appropriate weight. The maximum index that a variable can have is +1.00 when all respondents are satisfied; the minimum is -1.00 when all respondents express dissatisfaction; and 0.00 when all respondents were neutral. The results derived from table 7.13 indicate that all respondents responded to the 25

variables and recorded their level of satisfaction with them. It also shows that the respondents considered 21 out of the 25 variables of their housing environment as "**dissatisfaction**". Respondents were satisfied with only four variables; size of dwelling and neighbourhood cleanliness, (a high level of satisfaction), home orientation and quality of the house (a weak level of satisfaction).

Table 6.13: Index of satisfaction of 25 environmental variables selected for examining users' satisfaction with their contemporary houses in terms of their socio-cultural needs

No	Variables Description	I S
1	Size of the dwelling	+ 0.66
2	Neighbourhood cleanliness	+ 0.60
3	Home orientation	+ 0.17
4	Quality of the house in terms of space and materials	+ 0.15
5	Neighbourhood location	- 0.42
6	Neighbourhood recreation places	- 0.48
7	Type of neighbours	- 0.53
8	Dwelling location	- 0.63
9	Type of the dwelling	- 0.63
10	Vandalism	- 0.64
11	Neighbours status	- 0.68
12	Acoustics privacy	- 0.81
13	Neighbourhood privacy	- 0.84
14	Aesthetics in terms of decoration and landscaping	- 0.85
15	Visual privacy	- 0.86
16	Type of building materials	- 0.87
17	Home comfort in terms of climate	- 0.87
18	Neighbourhood security/safety	- 0.88
19	Privacy from neighbours and street	- 0.88
20	Relation with neighbours	- 0.89
21	Neighbourhood religion facilities	- 0.89
22	Home relation with mosque	- 0.90
23	Dwelling layout	- 0.92
24	Attempted Break in	- 0.92
25	Settlement	- 0.94

Source: Fieldwork, 1995

7.5.2 Residents Mobility in their neighbourhoods

From interviews it was found that residents moved from one neighbourhood to another, searching for a suitable location near public facilities. Neighbours who have the same social classification, relatives or friends moved to improve their neighbourhoods built environment. These move decisions are important, as the outcome of such moves produces changes in the composition and character of contemporary neighbourhoods. Residents' mobility level in the neighbourhood was measured in the sample by asking the respondents about the reasons which made them change or why they planned to move in the near future, and what was the opinion of the Key Figures about theses changes. It is clear from a discussion carried out with some of Ghadames residents and Key Figures that respondents are greatly influenced by the traditional neighbourhood's social organisation. For instance they try to create the same social organisation they experienced in the traditional settlement. Users who moved from one neighbourhood to another where their relatives live and are of a similar social class, age group, marital status, and have the same place of work, increase their satisfaction with the contemporary neighbourhoods social environment compared to those who do not.

The results of the data analysis of the reasons why households seek to change their neighbourhood revealed that respondents sometimes had more than one reason to move. Table 7.14 shows that 93 per cent were looking for relatives' as neighbours, 60 per cent were looking for friends who have the same demographic characteristics, 78 per cent had problems with their neighbours, and 38 per cent required public services availability. Heterogeneous residents in the contemporary neighbourhoods were found to be negatively correlated with people's satisfaction with their neighbourhoods. It may create problems which affect the residents' level of satisfaction with the social relationships and so affect them in terms of privacy and security. However, satisfaction is positively correlated with the homogeneity of those who live near relatives and with whom they

share the demographic characteristics and availability of public services, and this increases the level of satisfaction.

Findings suggest that the criteria used to choose another neighbourhood are a reflection of what the users are missing in the contemporary settlement at the neighbourhood level. The most important is the nearness of relatives or friends and those who have the same socio-economic characteristics in the neighbourhood and with this they avoid creating problems which may affect their security and privacy. The second attribute is the nearness to public facilities such as particular schools, mosques and the place of work which people used daily and this promotes greater safety. This implies that if these attributes were fulfilled in contemporary neighbourhoods then those residents who wanted to move would be less likely to do so.

Table 7.14: The reasons which made households seek to change their neighbourhoods

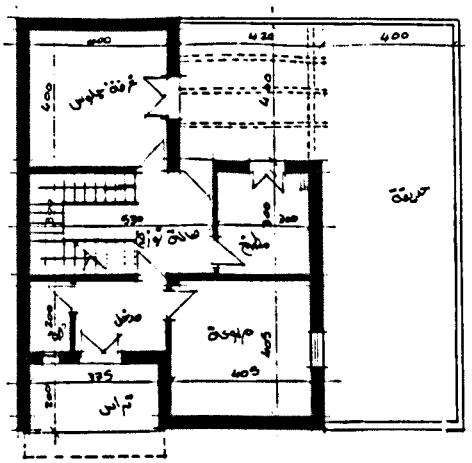
1) Nearness to relatives neighbours	93%
2) Nearness to friends or for who have the same demographic characteristics	60%
3) Problems with neighbours	78%
4) Public services availability	38%
5) No response	0%

Source: Fieldwork, 1995

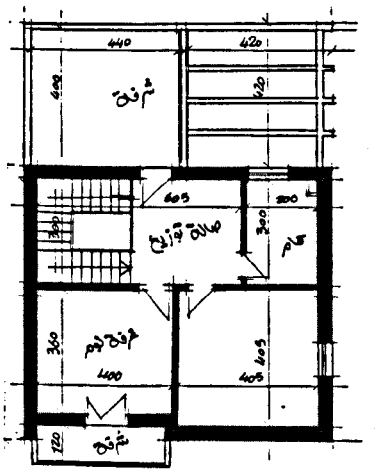
7.5.2 Residents' attempts to modify their dwellings

In this study, responses in the contemporary settlement, shows that users take an active role in their environment, interacting with it and sometimes adjusting it to suit changing situations so making it more suitable for their social life needs. Indeed, the modifications carried out in the contemporary dwelling are mainly to accommodate the household needs. These modifications are related to the dwelling's design and structure, and denote the designer's failure to satisfy the users' needs. The modifications carried out are quite

different, figure 7.22 represents one of these types. A quite common modification occurs when the residents wish to increase the guest room size, and add a room for female visitors, to be used by household members, subdivisions of rooms, store room, and so on.

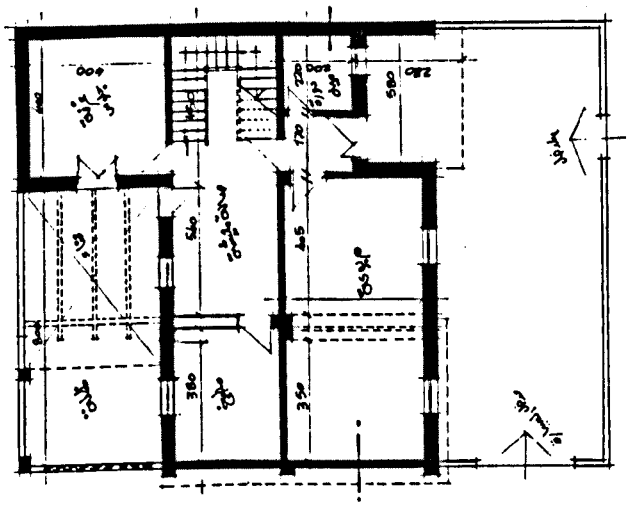


Ground floor

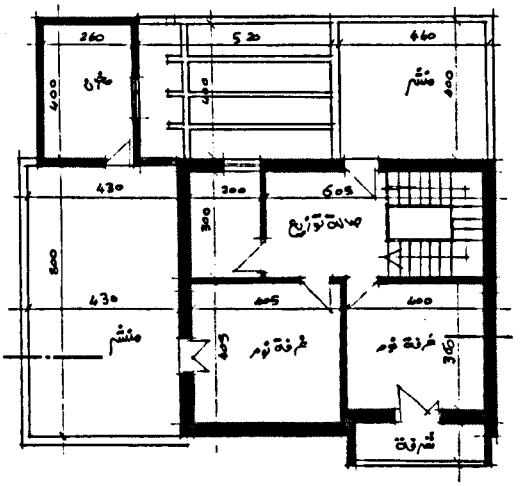


First floor

1) Original plan



Ground floor



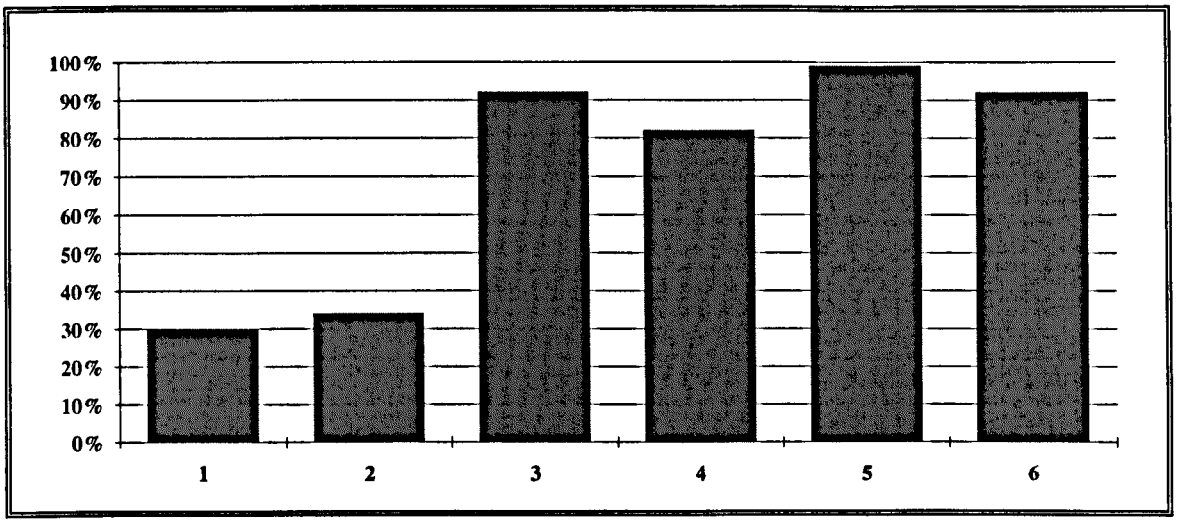
First floor

2) Transformed plan

Figure 7.22: Users' attempts to improving their dwellings social environment

Source: Fieldwork, 1995

Statistical analysis shows that 30 per cent of the respondents built extra rooms, 34 per cent were subdivided rooms, 92 per cent changed an opening, such as the guest room door, 82 per cent of the respondents closed or changed the balconies making an extra room or screened window, 99 per cent of the respondents screened their dwelling windows, particularly on the ground floors, for social control and maximum privacy which the designers neglected and 92 per cent added screens to their entrances or iron doors (figure 7.23).

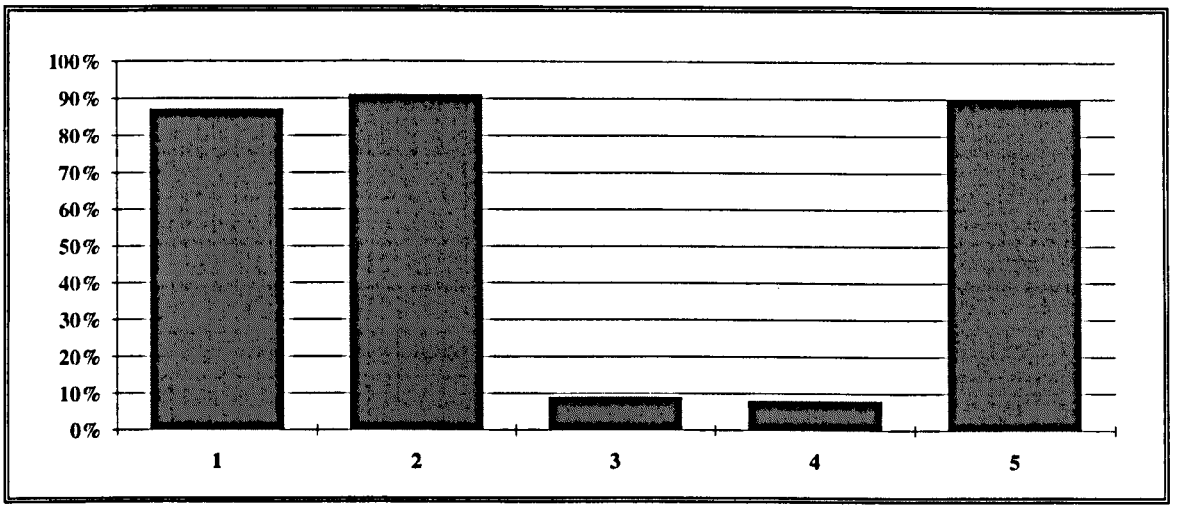


1- Extra rooms
2- Subdivision of rooms
3- Closed opening
4- Closed balconies
5- Extra iron screens or windows
6- Additional iron door

Figure 7.23: Types of modification within dwellings

Source: Fieldwork, 1995

However, some rspondents reported their desire to change something in their dwellings to improve their built environment but were unable to carry out changes. There are many reasons for this such as financial and land problems. Figure 7.24 represents the reasons which influenced the respondents' to carry out some changes to their dwellings in order to improve their contemprorary dwellings' environmet.



1- No money
2- Land too small
3- Neighbours problem
4- Contruction problem
5- Permeation to build problem

Figure 7.24: Reasons made residents unable to carry out some changes in their dwellings

Source: Fieldwork, 1995

Furthermore, when all the respondents were asked: "Do you think the changes in your residential environment have influenced your social life?" 3 per cent answered "very much", 9 per cent said "a lot", 4 per cent answered "not at all", the majority, 80 per cent of the respondents stated that their modifications had produced only a little improvement in their built environment, and only a minority of respondents, 3 per cent, replied "very little" (figure 7.25). This means that the modifications carried out in the contemporary dwellings are not meeting the households social life needs. For that reason, the researcher asked the respondents this question: "How would you feel about moving from the dwelling which you now live in?" 23 per cent were very keen to move, 65 per cent of respondent desired to move from their present dwellings, 10 per cent said that it made no difference to them, and the minority, 2 per cent of respondents, wished to stay where they were (appendix 31).

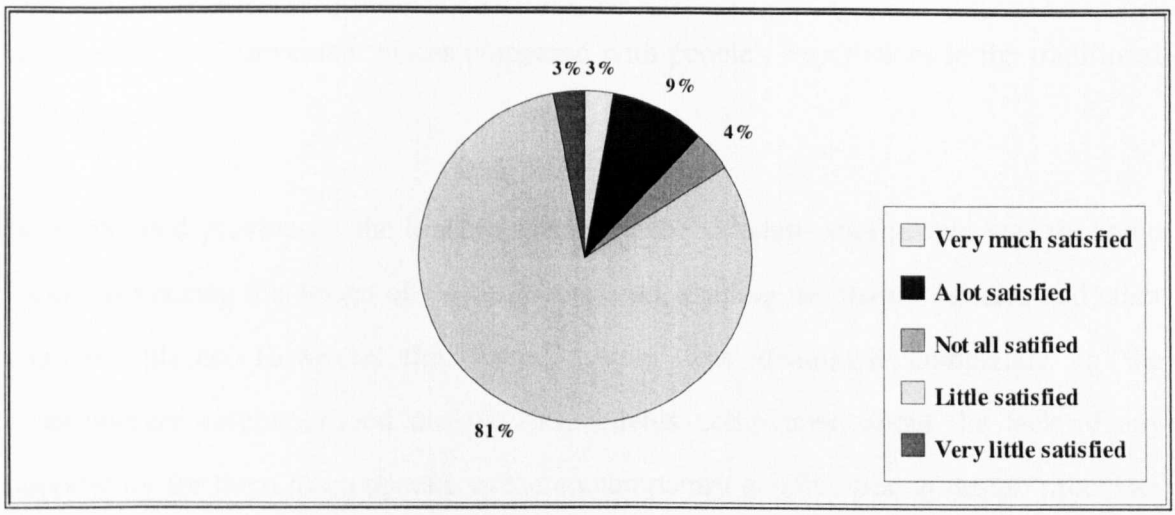


Figure 7.25: Users' feeling about their dwellings after the modification

Source: Fieldwork, 1995

7.6 Summary

Since the contemporary settlement was designed in conflict with the traditional settlement, the majority of Ghadames residents were unhappy with their new built environment, particularly in terms of response to their social life. That is obivous from people's opinions about their present home. The high level of dissatisfaction can be explained by the lack of any study of the users' socio-cultural values and climatic need before the contemporary residential area was established. To ensure people's satisfaction with their houses, it is essential to allow them to participate in the design process so that full attention can be paid to their need for privacy, security, safety, religious and prestige values.

When respondents were asked to assess their contemporary settlement, it was revealed that most people were dissatisfied. Complaints often mentioned by residents are; the contemporary settlement is in an unsuitable location with a lack of water and vegetation, and that there has been poor planning and design with regard to their socio-cultural values and climatic needs. Public services such as schools, mosques and market are inadequate

and located in inconvenient places compared with people's experiences in the traditional settlement.

As mentioned previously, the kinship system of the Ghadamesian people was the main factor influencing the design of the neighbourhood, shaping the streets, squares and other common places. However, this social system was dismissed completely in the contemporary neighbourhood design. Respondents complained about the lack of any opportunity for them to co-operate in the contemporary neighbourhood design processes and that caused many problems such as heterogeneity between neighbours, unsuitable external places for carrying out their social activities (particularly in terms of privacy), children suffering from traffic problems, and shops and other public places continuously plagued by burglary. Moreover, there were not enough religious facilities, such as mosques, where people practise their five prayers a day and they missed their prestigious elements which they experienced in the traditional neighbourhood such as plants, recreation places, neighbours' status, and the presence of streams of water to give a sense of refreshment and beauty. However, there is an improvement in the level of cleanliness in the contemporary neighbourhood.

Respondents in the sample were unhappy with and sometimes rejected, the contemporary dwelling design because they described it as unable to meet their social life needs and to provide protection from the harsh climate. This study shows an attempt was made by the users to modify their dwellings to improve their built environment but they were sometimes unable to carry out changes because of money, land, construction problems and so on. However, there are some physical components accepted by some users, particularly the young age group, such as dwelling size, orientation and quality of the dwelling in terms of materials and space.

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CHAPTER EIGHT

CHAPTER EIGHT

CONCLUDING REMARKS

Table of Contents

8.1 Introduction

In many developing countries, including Libya, designers and decision makers may be confronted by many problems when designing housing for a social or cultural group of which they are not members. They may base their design on a series of assumptions which are, in fact, extrapolations from their own experiences. The end result is often, sadly, a downgraded version of a dwelling type which, in its original form, could be acceptable in the designers' own society but which, in its downgraded form, falls short of the demands and expectations of the target society. The design of the contemporary project under study is based mainly on the personal images of the designers. It is probably true to say that the designers knew little about the social and lifestyle requirements of the people for whom they were designing. For this reason it was the main concern of the researcher to devise a systematic method capable of finding out what kind of house is most desired by people in Libya. As a result of these findings recommendations will be made for future housing design and these will be discussed in this chapter.

8.2 Summary of the Research Findings: Users' satisfaction and Housing preferences

The main purpose of this section is to show how the present study adds to past findings in social research on housing. Five socio-cultural values; choice, security/safety, privacy, religion and prestige were investigated in the two previous chapters, examining both traditional and contemporary areas. As previously stated, a complete picture has been given of residents' participation in voicing their views about their traditional and contemporary houses, and their level of satisfaction with both settlements has been recorded; what they like and dislike, according to their socio-cultural values and needs. As a result of the analysis, the people's views about their traditional and contemporary houses were discovered, and these findings can be used in future planning of house design. The points made in this chapter have already been mentioned in chapters six and

seven, and the analyses were done individually and on a general basis. At the risk of being repetitive, it is relevant to bring together the findings from the two chapters, to see whether there are general conclusions to be drawn about the design of housing according to socio-cultural values and needs. If so, then valid foundations can be built and appropriate policies formulated for designing and planning residential environments, and so provide housing that meets people's desires and needs, particularly in terms of social life requirements. Moreover, in order to make sure that the people had understood the implications of the questions asked, and that the information elicited was accurate, a second survey was carried out during the fieldwork, concerning their housing preferences.

8.2.1 Users' Satisfaction with their Settlements

The two earlier chapters show that residents were most concerned about the settlement location, building arrangement, streets, sewage system, and availability of public services. It was apparent from the findings of this study that the majority of respondents were satisfied with traditional settlement and dissatisfied with the contemporary settlement. However, respondents have complained about various aspects of their two settlements, traditional and contemporary, particularly in relation to their socio-cultural needs. In order to identify residents' settlement preferences all the 120 households in the sample were asked. "What type of settlement do you prefer and what do you want it to look like?" The majority found the traditional settlement acceptable in terms of location, public facilities, and building arrangement. But they did not approve of the street system, because the narrowess of the streets makes them unsuitable for vehicular traffic. The residents stated that to make a settlement attractive, it is necessary to build in an area where there is sufficient water, vegetation, where the streets are carefully planned and of sufficient width, and where the buildings are conveniently arranged according to the climatic and social conditions. It is also important that the residents should have easy access to public services such as mosques, schools, shopping areas and recreational places. These four

attractions were most frequently used as specifications against which settlements were judged.

According to the findings of this study people were also concerned about certain physical features of their preferred settlement, such as vegetation availability. This makes the settlement more comfortable, particularly in terms of climate, aesthetics and feelings of security and safety. It is important to understand that the proper choice and right positioning of vegetation could ameliorate the local climate to povide more amenable micro-climates for human habitation (Robinette, 1977). The traditional settlement included all that was essential for a good life and therefore people were far more satisfied with it than with the contemporary settlement (figure 8.1).

It is interesting to note that none of the respondents of Ghadames desire to live in harsh, marsh land areas, like the contemporary settlement, particularly people who previously lived in the traditional settlement. Moreover, interviews revealed that the influence of people's background was the only variable to have a significant effect on their residential settlement choice; a similar result was found by Yeh (1974) in his study of Housing in Singapore. People's appreciation of the attractiveness of their settlement has also been found to be influenced by how much their current environment has to offer in comparison to their previous one. The findings indicate that residents who grew up in traditional settlements prefer traditional areas more than those who grew up in contemporary areas or are not natives of Ghadames. If the city is divided into sections, it can be said that, within the oasis, the palm tree area is the most preferred, while outside the oasis, the marsh area where the contemporary settlement is located is the unacceptable area (figure 8.2).

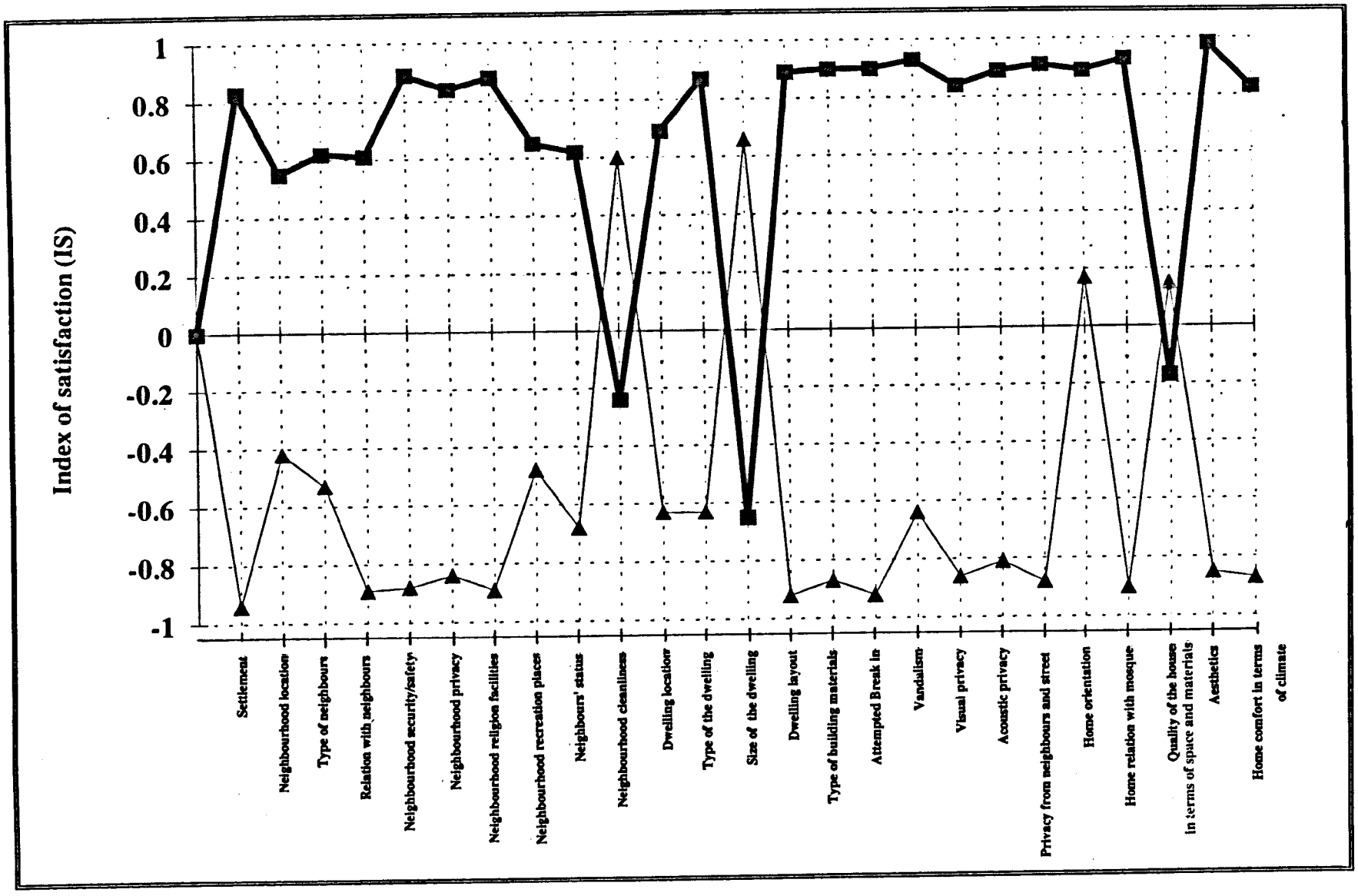

Figure 8.1: Comparative users' level of satisfaction with 25 environmental variables within their Traditional and Contemporary Houses

Source: Fieldwork, 1995

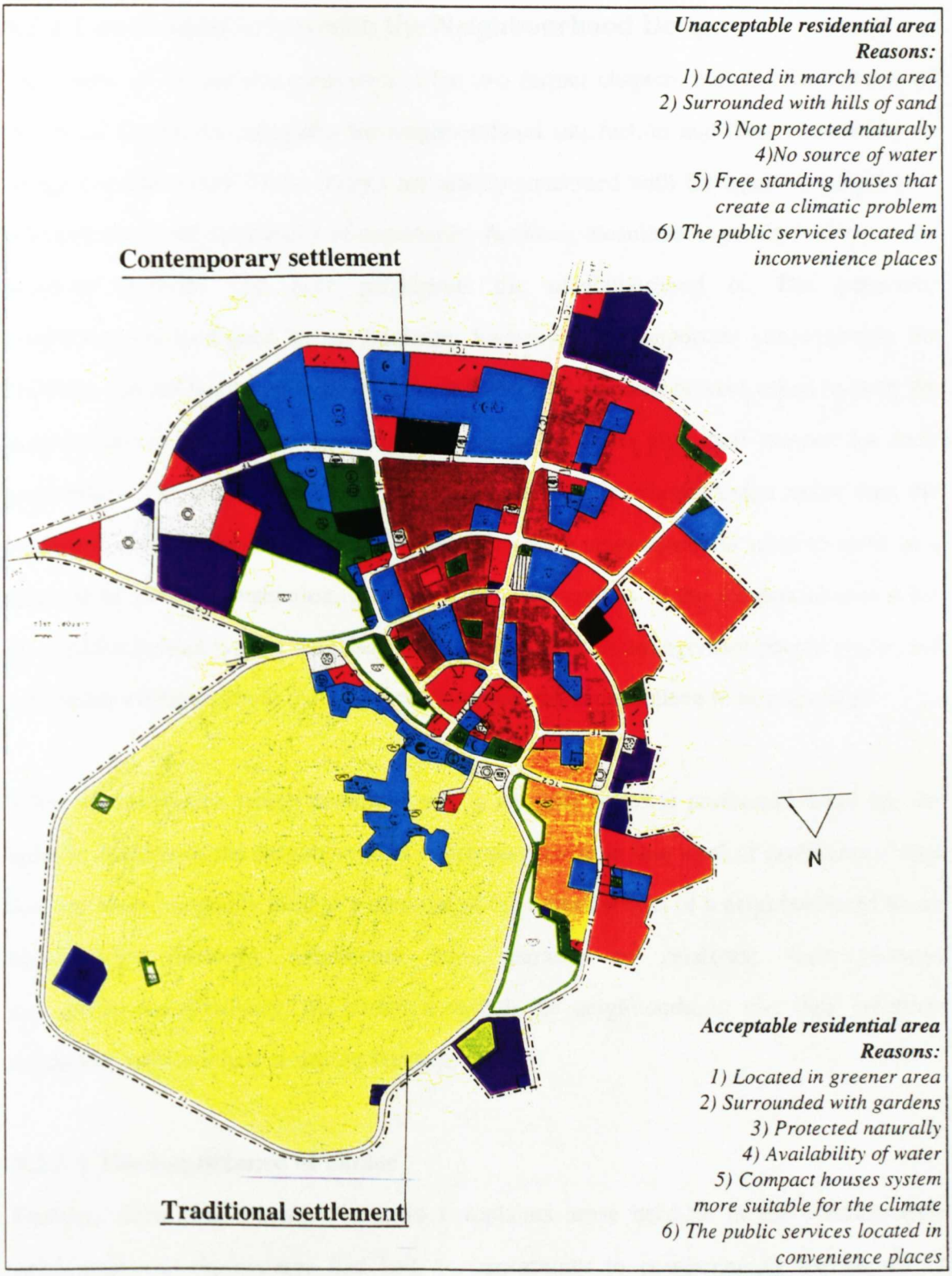

Figure 8.2: The acceptable residential area

Source: Fieldwork, 1995

8.2.2 Users' Satisfaction with the Neighbourhood Design

The results of the analyses presented in the two former chapters indicate that several of the social factors are important for neighbourhood satisfaction and their amenability to design considerations. These factors are mainly concerned with the kinds of neighbours who live there, the availability of community facilities, cleanliness, security/safety levels, religious facilities and how prestigious the neighbourhood is. The particular neighbourhood examined by an incoming household has important consequences for children, and for household relationships in general. Respondents were asked to state the neighbourhood in which they would prefer to live and to give their reasons for their preferences. The majority preferred the traditional neighbourhood design rather than the contemporary neighbourhood. Stated preferences for a neighbourhood seem to serve as a measure of people's evaluation, as well as their perceptions of the residential area. This also indicates what type of neighbourhood environment or arrangement people prefer and indentifies elements about the neighbourhood that residents believe to be important.

What are the factors which determine why a neighbourhood is preferred? What are the specific features of the neighbourhood which play a role in this level of preferences? The features were frequently used as a measure of the attractiveness of a neighbourhood were; homogeneity between neighbours and nearness to relatives; security/safety; considerations of privacy; the extent to which the neighbourhood met their religious needs and satisfied their desire for prestige.

8.2.2.1 The importance of choice

Findings show that the most frequent complaints arose because in the contemporary neighbourhood, respondents had had no opportunity to co-operate in the choice of neighbourhood, in terms of location, type of neighbours and relation with neighbours. From examining these three variables, it was found that the residents were more

concerned about homogeneity with their neighbours. It was important to them to live near to people who were related by blood and had the same social and religious outlook. In the Libyan Society, and in Ghadames in particular, propinquity is the most important factor affecting the process of homogeneity between neighbours and is more important than socio-economic and cultural characteristics. The homogeneity of a neighbourhood is a perceptual phenomenon, that is, it must be perceived to exist by the inhabitants themselves. It refers to residents' feelings about each other in terms of attitudes, opinions and social characteristics (Porteous, 1977). It is well expressed in the phrase: "We are all alike in this neighbourhood". This homogeneity, as perceived by the residents, enhances their participation in social activities (Tomeh, 1964). There are several efforts made to keep neighbours in good relationship. Kuper (1953) used three indices of neighbour relations to measure the correlation between spatial and personal characteristics. The measures used were:

1) the ability to name neighbours,
2) the extent of sociable activity among neighbours and
3) the choice of most preferred neighbours.

However, with regard to Libyan society, the ability to name neighbours would not be regarded as sufficient. It would be necessary to know, in detail, the blood relationships existing in the neighbouring households and their household background. Findings from the survey revealed that, even if people work together, they may have no intimate knowledge of such people and have no real relationship with each other. This lack of knowledge and social relationships can lead to problems between neighbours.

The findings suggest that respondents prefer the traditional neighbourhoods to the contemporary in terms of location, type of neighbours, and social relation with neighbours (figure 8.1). It is obvious that people were sufering from a lack of

homogeneity in the contemporary settlement and, for that reason, they recommended this variable as the most important for a built neighbourhood. They prefer to choose their neighbours on the basis of propinquity rather than of social class, because they stated that maintaining friendly relationships ensures homogeneity. For example, a previous chapter shows that when residents move from the traditional residential area to the contemporary one and are brought together for the first time, a considerable social solidarity springs up. They are faced with a variety of common jobs such as furniture fixing, and so on, which need the help of others. Mutual assistance was observed in the traditional neighbourhoods to be conducted according to social relations; people of a closer relationship are more likely to help each other rather than those of more distant social relationships. Gans (1961, 1967 and 1968) found that propinquity is an influential, rather than a determinant factor in fostering social interaction. The major criticism of the previous studies was that all of them connected the homogeneity only with the social class factors (identified by age of adults, marital status) and neglected the "propinquity factor" that is the factor which most influences the homogeneity between neighbours particularly in those societies which are still influenced by the tribal system such as Libya. In short, it is suggested that, whilst designers cannot create communities, they can provide the physical potential for social relations to develop. In the design of housing areas, decisions about site planning and whether to provide for physical proximity in order to encourage social interactions should be judged in relation to the needs of the particular group of people who will inhabit them. Similarly, the more homogeneous the residents of a certain community, the more likely they would be to have strong social relations.

8.2.2.2 Security/safety

The major findings of the previous analyses in chapters six and seven, were that the level of security/safety of residents and the prevention of vandalism, as well as the availability of nearby designed children's play area and the distance to schools were the most

important features in terms of safety and security. The need to prevent their children from becoming traffic victims, was by an overwhelming majority, the most important factor which influenced respondents' level of satisfaction with their neighbourhoods. It is obvious from the design point of view that the traditional neighbourhood more successfully met these demands than the contemporary neighbourhood. Findings show that traditional neighbourhood design is more acceptable than the contemporary neighbourhood design. This is because the physical characteristics of the contemporary neighbourhood design reflect the lack of knowledge on the part of the designers about the need for security/safety and particularly children's needs in the external areas in their neighbourhood environment (figure 8.1). The summary of the major findings which seemed worthy of consideration is as follows.

1) The distance and location of schools and the need for children's play areas to protect them from car traffic were the most important issues for the vast majority of residents. The most frequent suggestions were to provide equipped and sheltered play grounds such as those found in the traditional neighbourhood.

2) People are happier and feel safe when they are related to their neighbours by blood and custom and have a similar outlook. Respondents can then be aware if there are strangers in their midst and can challenge them and neighbours look after each other's houses, particularly when some of them are absent.

3) The distance to where the head of household works and to the shopping area followed as the third most important factor in designing the neighbourhood.

4) Respondents were also concerned about trees and plants because their presence gave them a feeling of security and to plant a variety of plants improves the external environment for the children playing outside. Chenaf, (1989:160) also noted that there is a "feeling of security attributed to landscape and vegetation".

8.2.2.3 Adequate outdoor space for household privacy

The findings from this study confirm the importance of residents' need for privacy in the areas immediately outside the dwellings. These findings indicate that the majority of the residents in the sample were unhappy about certain physical features of the contemporary neighbourhoods because of the lack of some facilities required on a daily basis or on special occasions for social activities. For example, outdoor spaces (squares and streets) and facilities (markets and shops) are available in the traditional neighbourhood for gathering and socialising. Findings also indicate that the arrangement of buildings around outdoor public spaces, with direct visual contact between them, affected the level of privacy of the dwellers. This problem hindered the outdoor social activities and affected the level of household privacy.

Another piece of evidence which emerged from this study showed what physical characteristics in the design might be responsible for privacy. Residents, particularly those from a traditional settlement, may participate more often in outdoor activities such as those held in sheltered or covered open spaces where they can gather without visual contact with the nearby houses. The majority favour the traditional system which successfully meets their social life needs in terms of privacy (figure 8.1). This system would be beneficial for designing their future neighbourhood, and well-maintained open spaces are related to feelings of pride about living in the future neighbourhood, and, consequently, increase the level of satisfaction. As also mentioned in the previous two chapters, the reasons given by the respondents for their satisfaction and dissatisfaction with both types of neighbourhood in terms of outdoor privacy deal mainly with three issues of attractiveness which the designers should consider when planning a neighbourhood.

1) People need small places for carrying out the daily activities such as playing cards, drinking cups of tea, or conversing in a quiet manner, under the shade of trees, and sitting on the seats in the street corners in sheltered places without disturbing others.
2) Places for meetings at neighbourhood level, such as halls or squares, where social activities such as weddings or funerals could take place.
3) Open and covered spaces for larger gatherings such as celebrating National Independence Day, horse races, football; these places should be in suitable locations outside the housing area. Such places will be used only occasionally, sometimes once a year.

8.2.2.4 Responses concerning religion

The results of the analyses suggest that people were concerned about suitable places for worshipping Allah, and for teaching the principles of Islam to adults and children. This is the house of Allah (mosque) and this was the most important factor in affecting people's perception about both the neighbourhoods. The results indicate that social interaction was mainly focused on religious activities, particularly daily prayers, the reading of the Koran and other activities, such as celebrations and funerals where bodies are brought to the mosque after death to be washed and buried. Moreover, residents gather in the mosque during the holy month of Ramadahan, and at this time, food is served daily from the surrounding houses so that people can break their fasting together and pray. The physical layout and design of the contemporary neighbourhood have not met the demands of these religious activies, unlike in the traditional neighbourhoods. The designer did not take the needs of religion into consideration when planning the contemporary neighbourhood. Hence there is inadequate space and facilities in which no conduct religious activities.

However, more empirical evidence was collected and is examined in this chapter in order to ascertain people's perception about the type of neighbourhood they preferred in terms

of religious response. The majority were satisfied with the traditional neighbourhood in terms of design in response to religious needs (figure 8.1). Respondents prefer the mosque system here because every neighbourhood had its own small mosque, or mosques, depending on the population. A central mosque is larger and more imposing, and is often provided and maintained by endowment to serve a wider area. This is sometimes called the Jummah or Friday mosque, as people from the whole settlement gather to make their Friday prayers. This opportunity is often used to resolve local issues such as problems between neighbours, or choosing a new council for the settlement. All these aspects of the mosque make it a vital part of the built environment and is always activite.

8.2.2.5 The concern of prestige

The findings of this study show that respondents in the sample were concerned about prestige and describe it as a reflection of their personality and socio-economic status as compared with other groups. People get respect from other groups, particularly those from outside of the settlement, according to the degree of their neighbourhood's cleanliness, quietness, and orderliness, which completely depends on the type of occupants living there. For example, dissimilarity between neighbours, or differences in status, create a problem of heterogeneity between them. Stated preferences for a neighbourhood serve as a measure of how people regard it, as well as their perceptions about the differences between the traditional and contemporary neighbourhoods as described in the two previous chapters. From the findings it is possible to identify issues about a neighbourhood that people believe to be important. The majority of the respondents favoured the traditional residential area because it met their prestige needs better than the contemporary. Three factors showed how people were concerned about the prestige of their neighbourhood level.

1) The upkeep of the neighbourhood has been recognised as a very important factor influencing satisfaction with neighbourhood environment. The maintenance of the communal spaces is also given special attention because it promoting higher residential satisfaction. A similar conclusion was reached by Lansing ***et al*** (1970:130): "upkeep of housing estates has been recognised as a very important factor influencing satisfaction with the housing environment".

2) The findings showed that people preferred to reside close to prestigious or compatible social groups. Satisfaction with neighbours has been noted as an important determinant of neighbourhood satisfaction. A similar result was found by Aydemir's (1990) study of mass housing in Turkey. Good neighbourly contact, such as having good relations with neighbours, affected residents' level of satisfaction.

3) Ghadames residents also gave more attention to the availabilty of recreation places in their neighbourhoods such as cinema, swmming pool, gardens, parks and other green areas where children can play and people spend their holidays. Figure 8.1 shows people favoured the traditional neighbourhood because it met their prestige needs better than the contemporary. They are satisfied with the recreational facilities and the status of the neighbours but they did not prefer the traditional neighbourhood in terms of cleanliness.

8.2.3 Users' Satisfaction with the Dwelling Design

In the previous two chapters, the emphasis was directed towards the assessment of the residents' satisfaction with their housing design in terms of social life response. Five selected values were examined in both traditional and contemporary houses in Ghadames City. The questions were raised "What were the important feature-specifications each household had used in the assessment of these values?" and "What were the most important attractions?" A number of issues have been raised in the present study with

regard to the users' perception about their housing environment in general, and dwelling design in particular, in terms of adaptation to their social life needs. This section will deal with the answers to these questions which were approached through the findings of data analysis of our sample's respondents' perception. The array of factors of importance to the households as they looked at their preferred homes is presented in the following sections.

8.2.3.1 Co-operation in the choice of the dwelling

What people say is highly related to what they try to get, and succeed in getting, for themselves at a later point in time (Michelson, 1977). Findings indicate that years ago members of housing committees gave their people the opportunity to co-operate in house design processes, particularly in terms of the choice of type, location, size, layout and building materials and in the past people have done better than the Housing Authority today. These physical elements were found to be strongly correlated with the opportunity of choice that was given to their users in terms of co-operation in the dwelling design process or taking account of their opinion when designing a dwelling. The satisfaction with those traditional houses is not surprising; from this study it was found that the majority of respondents were satisfied with their traditional houses in terms of the choice given to them to co-operate in its design. For example, they were consulted about their choice of location, size, layout of the dwelling and the building materials (figure 8.1). Although there are some complaints relating to the physical characteristics of the houses, such as its size, building materials durability, and inadequacy of the sewage system, these traditional dwellings were considered by the majority of the residents to be satisfactory. Their criticism of their contemporary dwellings is the result of not being allowed to share in the design process. As mentioned earlier, Ghadamesian households were moved from traditional houses to the contemporary ones because they needed more space, due to the households' size increasing and there being no development in the traditional housing sector which was left without maintenance or a proper sewage system. These reasons

forced occupants to leave their houses in the traditional settlement and to move to the contemporary settlement. The people who had moved tried to introduce some of the design features which they had liked in their traditional dwellings. For example, balconies were closed so that the space could be used for another purpose, and rooms and entrances were altered so as to make the dwellings conform to their choice. This confirms the findings of Rossi (1985), Ermuth (1973) and Ward (1985 and 1990). Dwellers who have the opportunity to co-operate in the design processes of their houses are happier and more satisfied than those who have no opportunity.

In view of the large number of people whose lives are affected by their housing it is desirable to make an effort to consult as many as possible when considering house design. Meetings should be arranged with individual groups wherever possible and ideas exchanged about housing design. If this is not possible, a survey of opinions could be made and published. The purpose of such consultation would be to co-ordinate the work between architects and users, which helps to rationalise the construction and consequently avoids demolishing or modifying parts of the dwelling as a result of mistakes.

8.2.3.2 Security/safety considerations

Findings of this study show that traditional houses are designed according to their users' needs for security/safety, and are safer than the contemporary dwelling. The majority of Ghadmesian people were very satisfied with their traditional houses where they lived in the past and did not take any additional security measures there. People in traditional houses live together according to their blood relationship which increases the level of security and provides suitable places for children to play and also decreases the vandalism caused by children. Moreover, the availability of greenness, vegtation and trees around the houses, increased the people's sense of security. However, most were dissatisfied with their contemporary dwellings and took important security measures such as inserting an

additional metal door and/ or metal grille on their windows. The lack of homogeneity between neighbours, and the absence of children's play areas were the most important factors affecting security and vandalism levels in the contemporary settlement.

It was discovered from the empirical evidence collected, how the right decision was made about the most preferred dwelling design in terms of security/safety. Taking into consideration the housing experiences of dwellers in both traditional and contemporary houses, people preferred the traditional house rather than the contemporary, particularly in terms of security and the prevention of burglary and vandalism (figure 8.1). The main reasons why the contemporary dwelling was unacceptable to the users were that the people expressed anger, feelings of vulnerability, and grief for lost and damaged things. This causes a psychological impact on the person's relationships with others and the general level of satisfaction with the dwelling design.

8.2.3.3 Preservation of household privacy

The findings underlined the influence of the physical characteristics of a dwelling on the residents' perception of the level of privacy inside the dwellings. The arrangement of the internal space, such as location of the guest room, main entrance, women's section and kitchen, as well as the placement of openings in relation to the street and passers-by or neighbours, have to be considered with care. It is important to say that the preservation of privacy of the household members (women and men) constitutes inseparable prerequisites of Islam, particularly in Arab society. Findings suggest that the design of a house is a direct interpretation of the social behaviour patterns of its household, where the social value of privacy is of great importance. Communication between different zones of the dwelling should be governed by the degree of privacy each zone requires. Ghadamesian people preferred the traditional house design because it is a direct interpretation of their privacy patterns by taking into account their need for visual and acoustical privacy (figure

8.1). For example, its interior space arrangement and placement of the openings were the result of the privacy convention. However, this message was completely missing in contemporary dwelling regulations. The three major types of privacy which households are concerned about are:

1) Household visual privacy between male guests and household quarters, particularly the female section, was found to be the most important factor determining the dwelling design in Libya. This was found to be affected by the interior space arrangement such as the placement of the main entrance, guest room, bathroom, female section and location of kitchen.

2) Acoustic privacy and avoidance of sound transmission between male visitors and household quarters was found, by an overwhelming majority of respondents, to also be a most important aspect of privacy. Hearing the sound of women's and children's voices by the household's male visitors made the head of household feel embarrassed and uncomfortable.

3) The need to prevent passers-by and neighbours looking into the house, and with the need to keep out noise. Findings showed that in the traditional houses of Ghadames, house openings were usually made to avoid looking into the neighbour's dwelling and internal space, and the height of these openings, especially windows, was above the level of a man passing-by and were not be positioned where they could be overlooked by people in the street or by neighbours.

8.2.3.4 The concern of religious needs

The Islamic religion has influence on the built environment, especially in Saharan communities, such as Ghadames. This study examined the level of satisfaction in both house types (traditional and contemporary), and it appears that the traditional houses are

totally responsive to their users' religious needs, but the respondents in the contemporary dwellings complained that there was a lack of any relationship between dwelling design and religious values. Data from this study also shows that the majority of Ghadamesian people prefer the traditional dwelling because it successfully responds to their religious needs, particularly in terms of dwelling relation with the mosque rather than the orientation, unlike the contemporary one (figure 8.1). This means that dwelling design must fulfil the users' religious values. This study discovered that there were two factors which concerned people about the necessity for adapting their dwelling to meet religious needs.

1) The dwelling relationship with the mosque is the most important variable. This process could be seen in the Ghadames traditional houses where religious trends translated into a practical design; houses were concentrated around the mosque and in close relationship with the mosque, but the contemporary dwelling has no such relationship with the mosque.

2) The dwelling orientation: People are not concerned too much about their dwellings' orientation because no specific rule or recommendation exists for dwellings. The specification is only for the mosque orientation which must be in the direction of Makkah. However, users in our study were concerned about the orientation of bathroom 'siphonic water closets'. The user of the bathroom prefers not to turn his back or face away from the direction of the holy Makkah, which means that the water closets must be correctly positioned in accordance with their users' religious needs.

8.2.3.5 Users' desire for prestige

Findings from previous analysis suggest that the majority of respondents in the sample preferred the traditional houses' design because it met their prestige needs better than the

contemporary design in terms of satisfaction with the aesthetics quality and climatic comfort. They recorded dissatisfaction with respect to the quality of the home in terms of the building materials and space (figure 8.1). Experience of traditional house design definitely influenced people's perception about their present dwelling design. The users' desire to have the contemporary built environment whilst having the traditional house design. Despite this, they had some complaints about the traditional house which they felt needed some improvement in terms of an increased amount of interior space, better building materials and a more efficient sewage system. It is obvious from the findings of the study that the following three variables were found to be relatively strong and to have a significant relationship with prestige.

1) The quality of the dwelling in regard to space and building materials. It was found that the spaciousness and size of the guest rooms were related to the users' desire for prestige and satisfaction with their dwelling, also the size of the kitchen, the size of space for female household members and visitors, and the size of the storage area and other rooms. The results confirm the findings of Tognoli's (1985) study, which noted that room size is one of the features of the dwelling likely to be associated with the users' level of satisfaction. The use of local building materials enables the users to be flexible in decorating their homes, and make them in keeping with their social and cultural needs. It is necessary that the local building materials should be improved in order to resist water and fire damage.

2) From the findings of this study, it appears that the aesthetic aspects of the dwelling are strongly influenced by the amount of decoration (which represents the household's status and prestige), the choice of building materials, texture and the amount of greenery outside and inside the dwelling. These are the most important factors linked with the residents' aesthetics level of satisfaction in both traditional and contemporary dwellings and, as

mentioned previously, many studies emphasise this fact, such as Cooper and Sarkissian (1986) who noted that building materials, the choice of colours and the amount of grass and trees influence the users' level of satisfaction with their dwelling.

3) The comfort of the home in terms of climate. Users' opinions showed the importance of flexibility and the ability to design houses to conform to climatic needs. That means dwellings should be able to provide protection against the harsh climate. This can be done by taking into consideration the use of suitable building materials, orientation, openings' size and location, and the arrangement of the dwellings.

8.3 Recommendations

Many factors are involved in the built environment. The non-physical environmental aspects such as security, privacy, religion, and prestige are not the only factors affecting this relationship. Other factors, such as economic and political, are also involved. The level of impact of these factors varies with different people, different places and different times. The present research has attempted to identify the influence of some non-physical environment variables on users' satisfaction with their housing environment in a Libyan setting, in order to create a user responsive residential social environment in public housing.

Since the study has been based on sampling from only two settlements, traditional and contemporary, located in a desert region in Libya, the possibility of generalising from the suggested conclusions in inevitably limited. Therefore, the recommendation and design guidelines in this chapter are far from complete, and represent only a sample of what could be surmised from a study of the vast unexplored housing domain in Libya. There has been a noticeable lack of research and empirical study in the field of housing, particularly in terms of social life needs. It is intended that these guidelines should act as starting points for further research. They are, therefore, only suggestions applicable to the current situation in Libyan housing design, and should be taken into consideration when the opportunity is given to the users to co-operate in the design processes concerning security/safety, privacy, religion and the importance of prestige. They are based on a social environmental design evaluation which included a social survey carried out in the areas outside and inside the dwellings, general observation made during the survey and a design investigation of these areas.

The guidelines are mainly based on the findings of the study and the author has chosen to order the material as the architect might need it. Recommendations are made about the design of the area outside the dwelling, including the settlement and neighbourhood, and advice is given about ways of dealing with interior space in terms of the design process.

8.3.1 Guidelines for new housing projects policy

The present policy of the State is to provide housing for residents who cannot afford to build their own homes; no attempt is made to involve the people in the housing process. This policy, as shown in the study, suffered from the lack of such supporting elements as manager skills, technical, planning and design capability. For example, it appears that the past housing experience, particularly in Ghadames, has proved that one of the main reasons behind the success of the traditional residential area was the participation in the decision-making between the Authority, designer, and people who will live in the homes. According to the Libyan political system, people have the ultimate freedom in making or participating in the decision process. However, residents feel that they lack any opportunity to do so. The Housing Authority has been involved in directing and controlling most activities related to the building industry and makes its own decisions in housing projects, choosing suitable designs for the target group and area, and allocating the projects, whilst choosing the designer, distributing the houses, and creating a cleaness and maintenance policy, so that planners and architects cannot plan in detail for particular people. The Housing Authority ignored households' social and cultural characteristics when producing the present contemporary dwellings' design. For these reasons, it is recommonded that the following housing policy guidelines are flawed and the Housing Authority should take that into consideration when establishing any new housing scheme.

1) ***Variety in Design for Different places and People***: The study shows the necessity for a better understanding of the area and the residents' characteristics and requirements. It indicates the importance of including socio-cultural values and taking into account the climatic conditions in housing scheme design. A country like Libya has three types of regions which are completely different in terms geography and climatic conditions, and somewhat different in social life. These differences should be taken into account when establishing new housing projects; each region must have a controlling body responsible for housing and research facilities. Therefore, the Housing Authority must identify what is appropriate for each region and give guidelines, especially in terms of users' social life needs and climate conditions, to the planners and designers in the design process stage.

It is suggested that a central committee at the highest level in the Housing Authority should draw up national general guidelines for housing. The details of planning and design should be left to the local regional committee so that the views of local residents could be incorporated. This national committee should be divided into three sub-committees, according to the regions, each of these to act as the controlling body responsible for housing processes. The regional committee and their local branches should work together and co-operate on the method and nature of their work and supply feed back to the central committee in order to show them the project proposal and to ensure that their opinion is heeded which will them give a strong basis of justification. Moreover, this would give an opportunity for criticisms to be voiced during the housing design process and thus avoid mistakes and disadvantages before the scheme takes shape (figure 8.3).

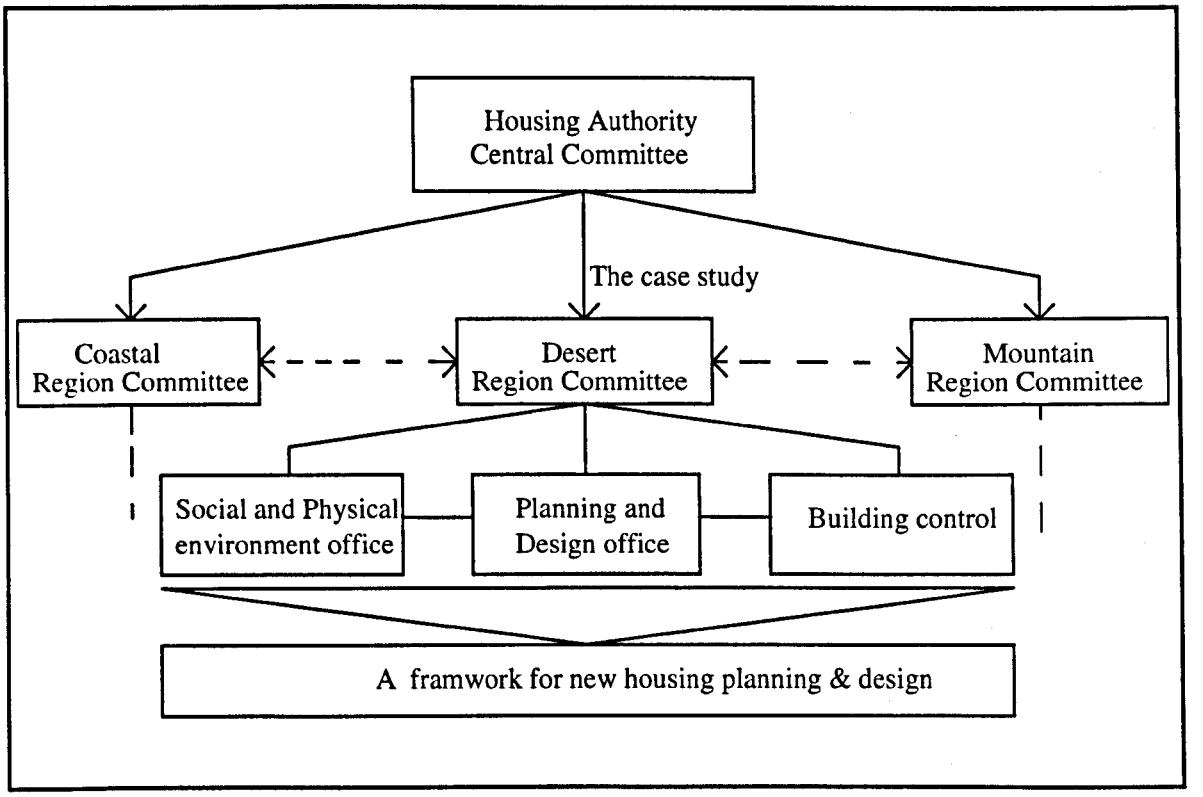

Figure 8.3: The organisation structure of the proposed Housing Authority to be in charge of housing decision-making process

Source: After El Fortea (1989)

2) ***Allocation of new housing projects***: Providing a convenient location for a new residential area is not an easy job. The present policy in terms of choosing the location of any project is in the hands of the Housing Authority. From this study, it would seem that this policy should change in the future to involve people more directly in the location of their houses. There is very strong evidence to show that people desire to participate in the allocation of their homes and that they reject the present policy. There is a need for a right and appropriate balance of the decision power between the Housing Authority, planners, architects and those residents who will live in the area. This would mean the achieving of a consensus which would result in a decision about a successful housing environment which would make life happy for the users. For example, Bhatt and Navarrete (1991) discuss an experiment of this nature in which sites have been chosen on what is called a

"self selection process" whereby individual households could share in selecting the sites for their settlements and houses. There are many ways which can be employed for getting people involved in making their built environment.

a) Generating design ideas by asking target people to draw on their experiences and knowledge, and express their own opinions about housing preferences. It is possible to identify some of the major elements of the dwellings they prefer. In this way one can draw sketches of the housing to be designed in future.

b) It is important to hold discussions with the target people to give them descriptions of the target site and carry out a physical survey. In that way, both physical and social problems of the location and experiences associated with it, are revealed and the solutions are created by the people in order to integrate place and background support into the architectural design process. Moreover, this will enable them to understand several important issues concerning their methods, such as how they carried out their previous housing design where they lived.

c) Observation should be made about people's activities such as celebrating, shopping, eating, playing, teaching and so on, in order to identify the major places which should be considered in the design stage, the progress of the qualities and attributes of those places, and the relation of the places to each other.

d) A further stage in the design process, the choosing of the site, is when the people meet the professionals and, together with them, consider what has so far been proposed. At this stage the people are able to make suggestions and raise objections.

3) ***Choosing the Right Designer*:** Acknowledging the socio-cultural and physical needs of the country is very important in the housing design process and cannot be fulfilled by the use of imported concepts and designs. Choosing a suitable designer is a very important factor which has a great impact on the success or failure of housing projects in responding to their users' life and climatic needs. The Housing Authority is the first body responsible for choosing the right contractors to design and build the target schemes. The designer's experience and knowledge about the target group, particularly in terms of socio-cultural needs and the physical nature of the area, must be taken into consideration when choosing the designer/contractor. The lack of any clear measures or policy for choosing the most suitable designers for public housing schemes, has led to the designers making certain assumptions about how the project should be designed according to their own experience, particularly if they are foreign. Indeed, it is obvious from this study that there were no clear criteria used by a Housing Authority when choosing the designer of the contemporary housing project in Ghadames. The foreign contractors lacked any knowledge or experience about the Ghadamesian people's social characteristics as well as the climatic conditions which led them to design unsuitable contemporary houses. In short, the Housing Authority should produce clear guidelines for designing any housing project for Libyan society. When selecting the designer, priority most be given to qualified designes (those with knowledge of the Libyan people's social life and the area) before the contract is signed. Finally, a suitable designer who can translate the valid principles and concepts of the socio-cultural needs of Libyan society and its implication into the built environment should be chosen.

4) ***Handing over the new housing***: This study shows very strong evidence that the people living in the contemporary houses in Ghadames, came from a mixture of different types of households. In allocating the completed houses, no thought was given to the compatability of the neighbours, the size of household, and other social and economic

characteristics of the users. This present policy of distributing the dwellings should be changed as soon as possible to put an end to the multiple problems it creates. The homogeneity between neighbours is a very important factor which increases respondents' level of satisfaction with their housing environment, reduces the number of burglaries and increases the residents' feelings of security and safety. In other words, having relatives and friends in the residential area was associated with housing satisfaction. The Ghadames traditional settlement is a good example of homogeneity between neighbours because the choice of house was made according to their blood relationships. It is important to encourage, or take into consideration, the forms of social system in traditional Ghadames when distributing new housing, particularly in the desert area where people are still influenced by the tribal system. This may reduce the social problems between neighbours and thus create a homogeneous society.

Furthermore, the present policy of distributing houses, which is controlled directly by the Housing Authority in Tripoli or their offices in other cities, is unsatisfactory. The decision for distributing dwellings should be shared between the Housing Authority and the target area representatives (Omana El- Mahlate) because they have more experience about their people than the Housing Authority, particularly in terms of social life conditions.

5) ***Cleanliness and Maintenance policy***: The findings of this study show peoples' satisfaction with the residential area as a whole is strongly correlated with their satisfaction with the standards of cleanliness and maintenance: Routine sweeping and cleaning of communal areas, the repair of damage or other appropriate action, when residents report a defect in their homes. However, the study observed that cleanliness and maintenance policies for the present contemporary public housing in Ghadames were not decided until after the handing over of the housing to the new owners. The lack of any clear policies on cleanliness and maintenance led the designers to make certain

assumptions on how the project would be maintained. Some works had also been left unfinished on the site such as roads, pavements, gardens and other common areas and this caused difficulties in clearing the area. The lack of building materials in the local market for maintenance caused further problems because most of the building materials used in the contemporary houses have to be imported.

In order to ensure an improvement in the upkeep and maintenance of the common area, this study recommends the use of building materials available locally which are suitable for the climatic conditions of the country and which people are accustomed to using. Furthermore, it is essential that all site works should be completed before the dwellings are occupied, and a detailed cleanliness and maintenance policy for the common areas should be devised. Moreover, the availability of an upkeep and maintenance office, located within the settlement, with a complete staff of cleaners and repair workers to take the responsibility for cleaning and repairing is highly recommended.

8.3.2 Guidelines for Planning and Designing New Housing

8.3.3.1 Users' socio-cultural needs in the external areas

Designing the external areas in the two kinds of settlement and neighbourhood is the main responsibility of the planners and not the designers. The planners need to consider the location of houses, roadway access, parks, the protection and improvement of the natural environment, landscaping and maintaining the community's way of life and activities, whilst working closely with the architect. This information could be gathered from the suggested environment design evaluation and social survey which would ultimately provide much useful information for the planners. This information should be available before starting the planning stage.

The study has suggested that more attention should be given to the design of the outside areas and this could lead to an increased possibility of residents being satisfied with their housing environment, particularly in terms of social life needs. The availability of places (such as squares or halls, shops, mosques, streets and trees) for the residents' social activity in the two kinds of settlement and neighbourhood, is potentially important for people's social interaction and communication. This study suggests some guidelines for designing a successful outside area.

1) ***Users' participation***: It is obvious from the study that the successful allocation of public facilities should be selected by the local municipalities and people before a new housing project is designed. The planners who are responsible for the allocation of public facilities and dwellings should recognise that the homogeneity of residents, in terms of stages in life and social relationship, can encourage positive social interaction between them, whilst mixing people with different social relations causes dissatisfaction. Moreover, direct contact with the future users would provide full awareness and understanding of the way they use external spaces.

2) ***Security/safety needs:*** Residents in this study were mainly concerned about those areas that could act as hideouts for criminals, cause traffic accidents or permit the free movement of strangers in their residential area, without any inherent controls, particularly in the contemporary residential area. The planners of the contemporary residential area were concerned with the provision of dwelling units rather than looking at the outside area in totality. Therefore, adequate security and safety measures should be incorporated in the residential area to safeguard people's possessions from crime and to protect their children from traffic accidents, especially when children have to cross a major road to reach their school or play area. Furthermore, the safety and security of young children

playing on the access area need to be considered in the detailed design. Planners must avoiding slippery materials or sharp edges when deciding on finishing materials and the choice of locations for electric meters, switchboards and so on. It was evident from the study that children's needs were not met by the physical design of the contemporary outside areas because planners were not fully aware of children's needs.

3) ***Consideration of outdoor privacy***: Protecting the level of privacy required by Libyan social customs in the public spaces, particularly in those areas such as the desert region, where people still use the outside space as a part of their houses, is essential. They carry out their social activities such as meetings, weddings, funerals and national occasions in the public spaces. The planner has to judge whether to create privacy for those places by making physical barriers such as walls, screens, fences, vegetation or by positioning houses at different levels. For example, covered public places, fenced or shaded, are particularly important in Libya for providing suitable levels of privacy for people who meet there and to ensure the privacy of the nearby houses.

4) ***Necessity of religious facilities***: Ghadames and other desert cities are, perhaps, the most conservative communities in Libya, in terms of their overall religious system and the role of religion in daily life. The study shows that the mosque is one of the important structures in those residential areas and received much attention from planners when proposing the location of the houses in the Ghadames traditional settlement. There every neighbourhood has its own mosque or mosques, the main function of which is as a place for prayer, but which also provides space for social functions such as education, community gatherings, shelter for Muslim travellers and a place for collecting charity for poor people. In another words, the mosque should be the first structure to be erected in a planned neighbourhood, sited in a convenient place far from vehicular roads and linked to the basic housing units by footpaths so that residents can reach it without any problems.

Moreover, every residential area should have a mosque where people can pray on a Frriday and Eid, and this should be designed to accommodate large numbers of people from different neighbourhoods within reasonable distances. Figure 8.4 shows the suitable location of mosques in relation to the home.

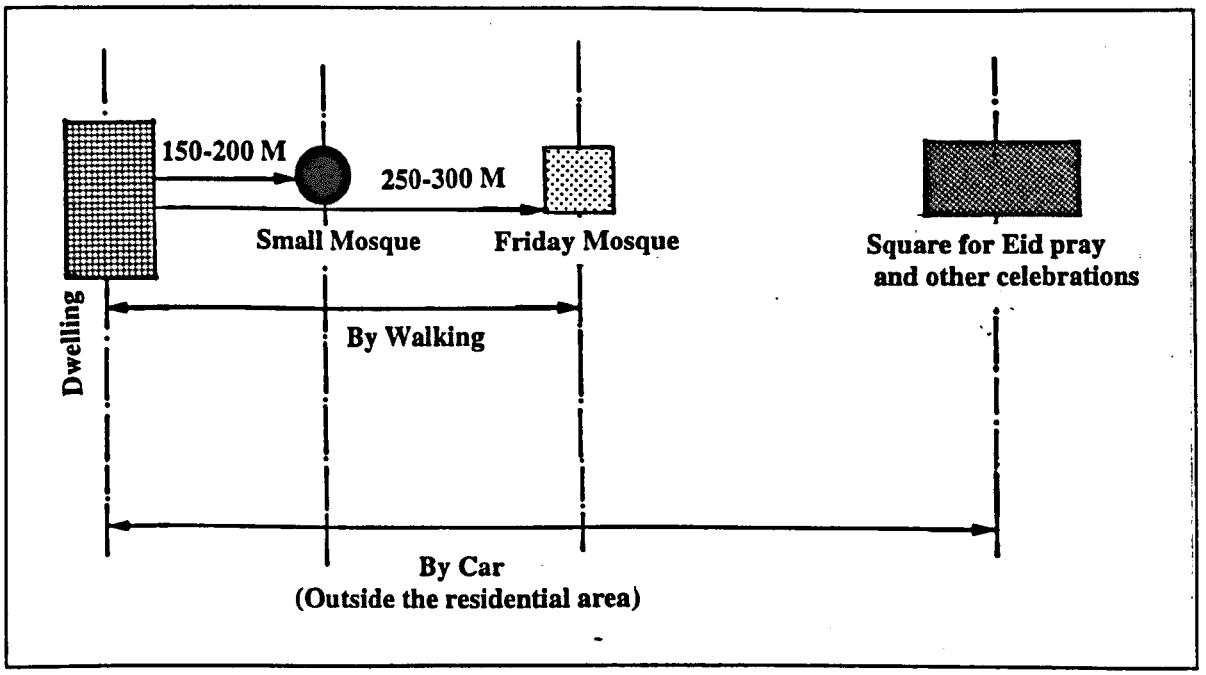

Figure 8.4: Service zone of the mosque

Source: After Ibrahim (1979)

5) ***Need for prestige in the external areas:*** As mentioned previously, respondents in this study were more concerned about the recreational places, neighbours' status and level of maintenance and cleanliness of the external spaces in public housing projects as the major factors affecting their prestige. There is a need for parks, playgrounds, and other public spaces, which people can reach easily and quickly. A high level of cleanliness and good maintenance increases respondents' feelings of comfort and well-being. However, in this study, particularly in Ghadames contemporary settlement, there was no provision made by planners for recreation places or the up-keep and maintenance of the external areas. For

instance, there was no clear indication that cleanliness and maintenance of the public housing project were the responsibility of the users. For that reason most of the public external areas are left without any maintenance or cleanliness, because no one was made responsible for them. Therefore, the layout of a new housing project should ensure that the recreational facilities are located within a short walking distance from housing units and a detailed plan for up-keep and maintenance of the external areas, such as spaces between housing, play areas, walkways, roads and other public buildings should be devised at the outset. For example, garbage disposal, should be located in suitable places which users can reach easily.

8.3.3.2 Users' socio-cultural needs in the internal space

It was apparent from the findings of this study that, as mentioned earlier, the majority of respondents were more satisfied with their traditional housing environment than the contemporary because it continues to meet their users' social life needs. However, they criticised and/or rejected the contemporary housing design in terms of its failing to meet their social needs. Thus, designers should pay particular attention to the traditional housing experience in the target area. This experience can be used as guidelines for designing new schemes. What measures are suitable and what people will accept can be taken into consideration and thus avoid the unacceptable variables. For that reason special attention should be paid by the architects, when designing new housing, to the influence of the local socio-cultural factors on the users' satisfaction with their home environment. Consequently, designers of housing must have an adequate level of knowledge of the traditional and the social and cultural characteristics of the Libyan people for whom they are designing. Without that information they are unable to consider in any detail how the users' social life and climatic conditions might influence the housing environment.

1) ***Involving People in the choice of the dwelling's physical components***: Designers must pay attention to the residents' experiences by giving them the opportunity to co-operate in the choice of physical components such as the type of building materials, type of dwelling, size, location, and layout. By asking people to give an account, in their own words, of the dwelling component in question, the experiences and the problems associated with them, and the solutions, as perceived by the people could be foreseen. One such technique which has gained attention in dwelling design is that of involving people directly in a process of selection and demarcation of the dwelling location, or involving them in dealing with ideas about the appearance of the dwelling layout, before the dwellings are designed. This means that the user should be encouraged to co-operate in the making of the built environment, in such a way, that meets their social life needs and given a chance also to identify some of the major components of the dwelling.

2) ***Dwelling security/safety measures***: The present study shows that previously people who lived in the traditional houses had no experiences of burglary and vandalism and therefore they did not require to take precautions against these crimes. People moving from traditional areas into contemporary dwellings were surprised to find that it was necessary to introduce measures to ensure their protection. Respondents complained that no attention was paid to their socio-cultural needs when their homes were originally designed. For instance, there was no system for complaining about break-ins, burglaries and broken windows. As a result of criminal damage they are unable to open their windows and their garden plants were destroyed. As mentioned earlier, studying the relation between the target group's social life and behaviour, is a very important task to be investigated by the architects before the design stage. A careful examination of the target group and area will give a clear reflection of the social and physical circumstances, such as the type of building materials, size of units, location of dwellings and other design features. For example, the rainwater pipes should be located against the wall as closely as

possible so that thieves cannot gain access via them; windows should be located at a high level or reinforced by steel grids to reduce the incidence of burglary and vandalism, and building materials should be fire resistant and made to resist any attack by burglars or vandals.

3) ***Consideration of privacy*:** Results presented in chapters six and seven show that privacy inside the house is one of the major problems residents face with their dwellings, particularly the contemporary ones. As seen in chapter seven, the residents could not use, in comfort, some parts of their contemporary houses such as the kitchen, bathroom and main entrance, especially when they have visitors, because household privacy is not protected by the dwelling design. The study shows that adding balconies is also not in keeping with the need for privacy. The designer should also ensure that there is a clear definition of the guest's/male zone, household zone and services zone, so that there is no ambiguity as to who has access to each area and control over the use of each space in order to ensure the visual and acoustic privacy between visitors and female household members. Figure 8.5 proposes the level of communication between the dwelling's different zones. Furthermore, privacy for the inhabitants from passers-by and from other dwellings should be ensured and careful consideration be given to the size and location of the openings that face the neighbours and street so as to minimise the sights and noise coming from outside. The Mushrabiyah used to screen windows of traditional dwellings influenced many aspects such as, privacy, lighting and aesthetic effects. All of those aspects were moulded together to introduce the Mushrabiyyah, the present designers can make a beautiful screen and this screen would solve the problem of privacy from street and neighbours and give good decoration for the dwelling. On the other hand, the use of the courtyard in most Arab houses provides the house dwellers with privacy and protects them from the view of their neighbours and street. Windows should be positioned at high level (figure 8.6).

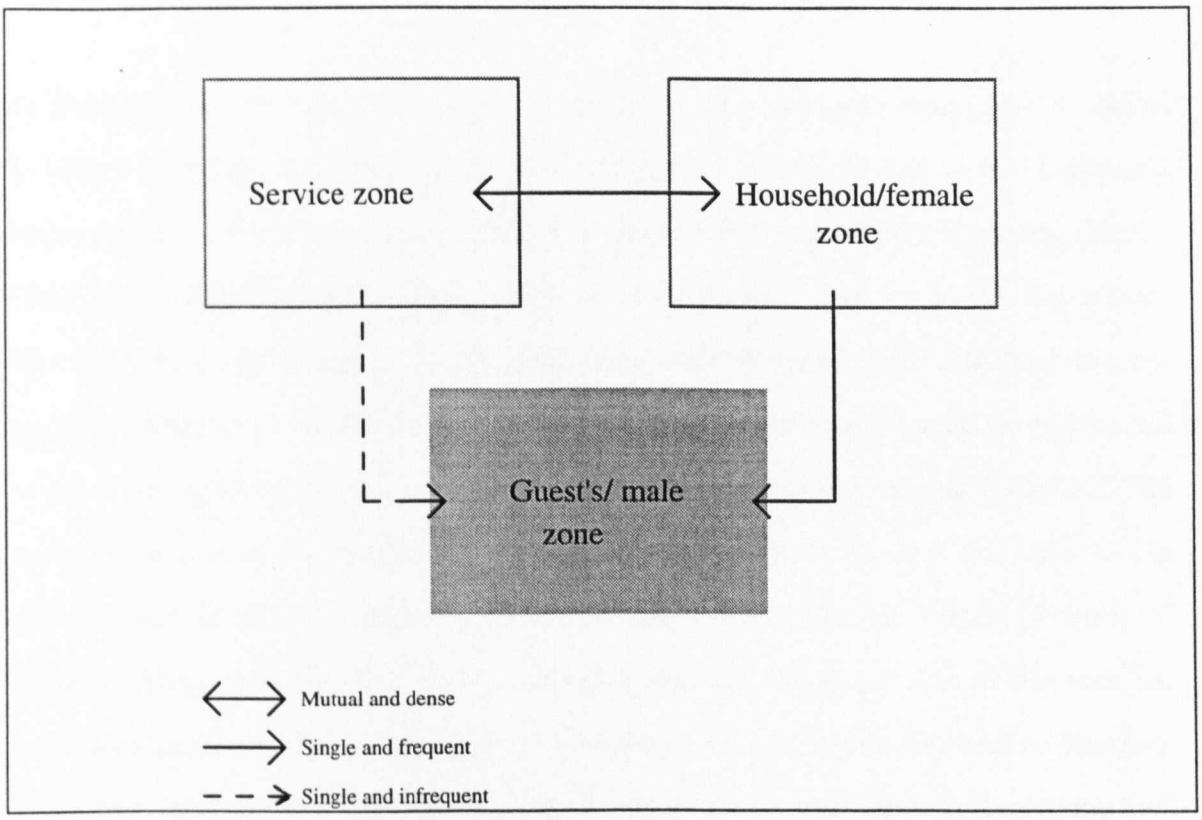

Figure 8.5: Recommended communication between the home different zones

Source: The Author, 1996

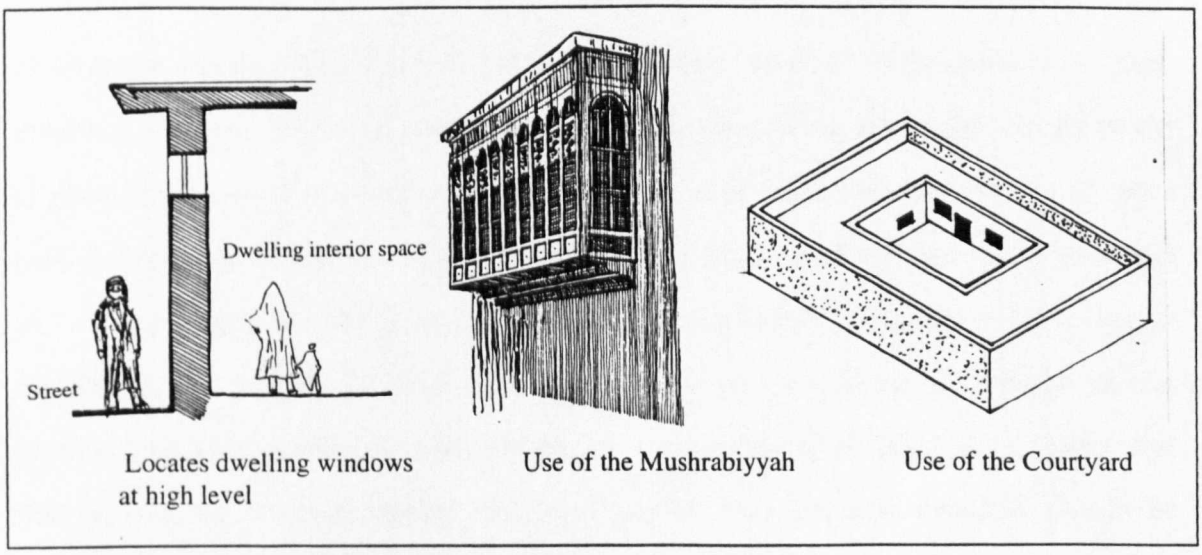

Figure 8.6: Devices to ensure visual privacy from neighbours and the adjoining street

Source: The Author, 1996

4) ***Religious needs*:** Islam is deeply rooted in the Muslim community, and it shapes Muslim's dwellings and their social life. This influence is reflected in the traditional house design in Ghadames, where there is a concentration around the mosques, but the Ghadames contemporary dwellings are in complete conflict with the traditional design. Findings show that residents in the past, when they designed and build their houses, organised them in a way that communicated with the local mosque because people needed to use it during the five daily prayers and like their houses during special occasions. The study showed that the dwellers, in evaluating their houses, felt that nearness to the mosque was of prime importance and they judged the values of houses in terms of religion. They also felt that it was essential that the designers should position the bathroom and its facilities for washing correctly in relation to the direction of Makkah. Moreover, the toilet and bathroom should be designed separately and preferably the WC not face Makkah, while ablutions should face it as well as a combination of both showers and bath equipment would be a suitable solution for prayers. Therefore, new housing designs should meet and answer the religious concerns of the people.

5) ***Prestige needs:*** This study shows that residents' level of satisfaction with their dwellings in terms of prestige was affected by the amount of interior space because of the climatic conditions. For instance, people were more concerned about the amount of space provided for guest rooms, kitchen, storage area, and space for female household members and visitors rather than the other rooms. They also regarded the sewage system, type of building materials and the amount of greenery outside and inside as prestige factors representing their position and importance in the community in the eyes of guests. For that reason, the designer should take into account that the new dwelling should be spacious enough for all the household members and their visitors. Special consideration needs to be given to the prevailing hot dry weather of Libya when planning and designing

such housing development. It is necessary to reduce the size of open spaces between houses, the size and number of openings within the dwelling and consider the suitability of orientation, colour, decorations, and the type of building materials that protect the users from the harsh climate and increase the level of prestige. Thus, compact layout is recommended for most of the country, particularly the desert areas like Ghadames (figure 8.7), planting and the availability of water are highly recommended, particularly in the area immediately outside the dwellings which improves the micro-climate and so increases the liveability of the area.

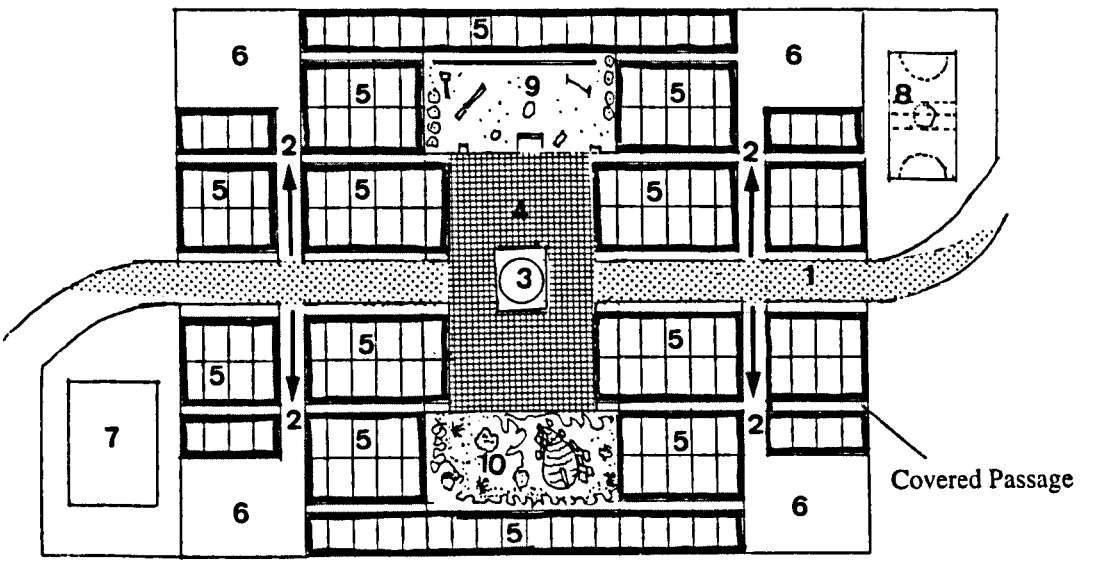

Figure 8.7: Recommended neighbourhood layout in the desert area

Source: Author, 1996

8.3.3 The Urgency for Research on Housing in Libyan Arab Jamahiriya

Environmental evaluation of housing design, especially in terms of human needs, has been used successfully in many countries particularly to assess the degree to which a certain environment can practically and definitely satisfy and support the users' needs. The main virtue of such evaluation is to provide lessons and knowledge which help those involved in the housing environment, particularly architects and planners, in the decision-making process, in order to create forms that meet not only essential socio-cultural values but also human needs in the target society.

In Libyan Arab Jamahiriya, no such studies have yet been carried out. Therefore, the author recommends some directions for further research and possible implementation that could be continued by Libyan colleagues, architects and planners who care about the housing design and for the Secretary of Housing, which is the official body responsible for housing in Libya.

(I) This research concentrated on studying housing design and its ability to met the users' social needs in settlements located within the desert area of Libya. This means that the findings of the present research may not be relevant to other parts of the country where the characteristics of the households and their social life patterns may be somewhat different. In particular people who live in the coastal region because they are more affected by modernity than others. Carrying out a similar study in the coastal and mountain regions of the country is most important in order to give a complete picture of suitable housing design for Libyan society as a whole.

(II) The present study has also shown relevant issues concerning the housing design environment in Libya which are in need of further research. These have already been explored in this research. For example, research is required into the physical characteristics of the dwelling's design for providing a physical form that meets their users' socio-cultural values and needs, such as household requirements for privacy, security, religion, prestige, and so on. A further investigation is needed to identify the residents' responses to the physical aspects of house design in relation to each of the five socio-cultural values.

(III) Findings of this study show that since the contemporary housing design conflicts with the traditional housing design, particularly in terms of response to social life and climatic conditions, their users sadly suffer. The opportunity arises for further research about ways in which to improve the existing contemporary housing environment conditions to made them more suitable.

(IV) It is strongly recommended that the local researcher should be linked with other related institutions in Libya and other countries which have more housing experience, particularly those which have similar socio-cultural values. This is urgently needed and could play a significant role in supplying the designers with valuable information. A particular effort should be made by the Secretary of Housing to highlight the importance of such research, and to set out particular incentives to encourage architects, planners and professionals from the relevant disciplines to explore the research issues of social environment relationships, and to participate in developing ideas on appropriate housing design for Libyan society.

(V) Architecture students are completely cut off from local traditional architecture. They learn about art history, the world leading movements in architecture and have hardly any

contact with local people for whom the design is intended. For that reason it is important to find a way of studying traditional architecture and the possibility of introducing some of its features in response to their users' needs as part of the curriculum for Architectural studies in Libyan universities. Co-operation between the Secretary of Housing and the Universities on this matter could also lead to successful housing design. Such student studies would provide the architects, the future professionals involved in the process of designing housing, with an awareness of the influence of past experiences and users' needs. The aim should be to keep the students in touch with the local social and climatic phenomena and make them realize the real problems facing the architectural profession today.

(VI) At the present time, traditional cities are in a sad state. Left without any attempts at conservation, some are in danger of collapse through lack of maintenance. This would be a serious mistake, as the destruction of such houses would be an irreparable loss. Urgent research is needed into ways of preserving these traditional cities. It is important that steps should be taken to maintain traditional Libyan cities like Ghadames and these should be regarded as models for constructing new housing schemes, particularly in terms of meeting social life and climatic needs.

8.4 Conclusion

Throughout this research, the importance of the socio-cultural values in housing design has been underlined. These are inherent in the traditional housing design, although, designers of contemporary housing seem to ignore these values. Therefore, this study has investigated these two types of housing in order to give a comprehensive picture of the way in which these houses fulfil these values and meet their users' level of satisfaction. An attempt has been made to formulate suitable criteria for new public housing design in terms of meeting its users' social life needs and understanding the suitability of the traditional and contemporary built environment of Libya in relation to socio-cultural values.

The findings of this study lead to the conclusion that the success of the traditional forms of settlement, neighbourhood and dwelling is the result of successfully dealing with their users' socio-cultural values and consulting their users. The contemporary design failed to adapt to the social life needs of the Libyan household. Turning back the clock is not possible because modernity has affected some aspects of the residents' lifestyle, and changes in furniture and new household domestic technology have caused specialised room usage and created the need for more regularly shaped and bigger rooms. Moreover, the use of new systems of transportation, such as cars, need new road systems, particularly in terms of width, and the new sewage system also needs different space dimensions caused by the use of new fittings and equipment. However, lessons can by learned from the traditional housing design system and from the residents' experience with it. For example, through spatial analysis in chapters six and seven, it was shown that respondents accepted the traditional design system but they recommended some change in the dwelling's physical components, such as the sewage system inside and outside. On the other hand, they desire more spacious housing, particularly in regard to the amount of interior dwelling space and they would like to improve the traffic system according to

their present lifestyle needs. In short, it can be said that people prefer the traditional housing design system more than the contemporary one and that gave an opportunity to the designers and planners to learn lessons from this architecture such as how traditional house design treated the problem of socio-cultural needs more effectively and the residents' perception about this.

This study makes recommendations for understanding user's socio-cultural needs when establishing new housing projects. The proposed recommendation is composed of guidelines which are sufficiently flexible to be applied to new housing in the Libyan context. It provides information about the users' social life needs in the new public housing and explains a way of considering the concept of users' socio-value needs in architecture and planning practices. Furthermore, it has raised many questions for future research in the area of housing design and its suitability for users' social life needs.

In summary, people's social life needs should be the top concern in terms of housing design in order to provide a high quality housing environment. There are many valuable concepts in the traditional houses, which could be of great advantage if their full potential was explored and then developed to suit our new needs. The Housing Authority, architects and planners must pay more attention, particularly in terms of using the knowledge available about housing design systems in the traditional settlements in Libya and other Arab countries, in order to avoid making the same mistakes they have made in the contemporary dwelling design. This study hopefully may succeed in pointing out the first step in the way of learning lessons from traditional housing and the findings could change the residential environment to create a more satisfactory environment, particularly in terms of their users' social life needs.

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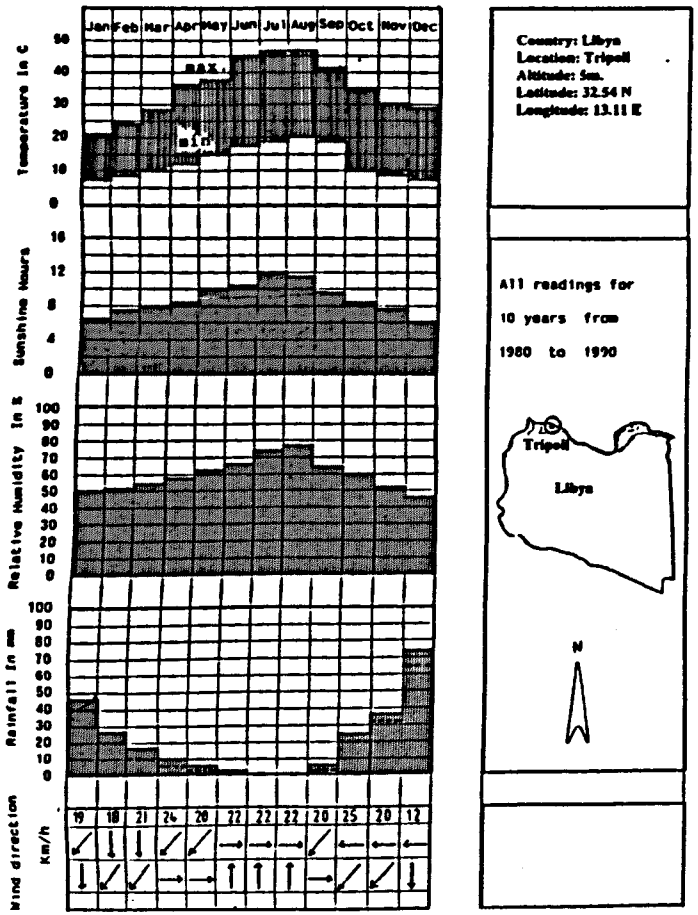
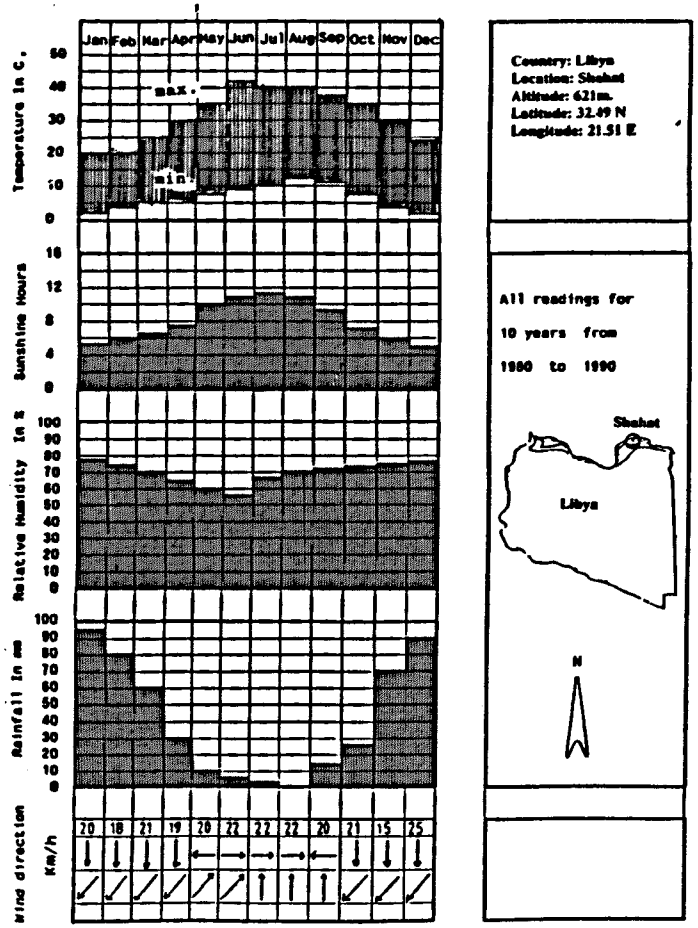
APPENDICES

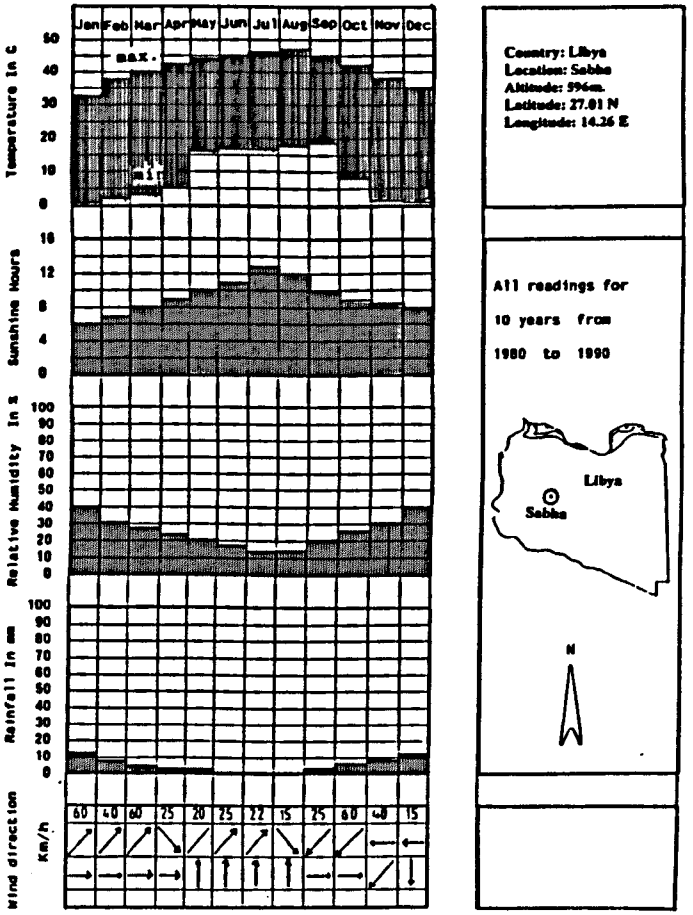
Climatic condition for coastal zone



Climatic condition for mountain zone



Climatic condition for desert zone



Appendix 1: Climatic zones in Libya

Source: Shawesh (1992)

Appendix 2: Physical checklist

Location:.....Sample No:.....
Counts. date:.....Film No:.....
Survey date:.....File No:.....

1 Dwelling physical checklist:

(1) Type of dwelling: ☐ Flat ☐ Traditional ☐ Villa ☐ Terrace house

(2) Plot coverage % ☐ Coverd space ☐ Opene space

(3) Building materials: ☐ Adobe ☐ Stone ☐ Reinforced concert ☐ Prefab structure

(4) Source of building material ☐ Local ☐ Imported

(5) Location of main entrance ☐ Facing main street ☐ Facing side street

(6) Opening location ☐ Street view ☐ Neighbours view ☐ Inside courtyard

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2 Neighbourhood physical checklist:

(7) Type of houses ☐ High rise ☐ Mixed ☐ Vila ☐ Traditional

(8) Neighbourhood layout ☐ Isolated houses ☐ Compact houses

(9) Type of streets ☐ Narrow street ☐ Wide street ☐ Covered street

(10) Public service ☐ Schools ☐ Shopping ☐ Mosques ☐ Festivals space ☐ Parking

---

3 Settlement physical checklist:

(11) Settlement location ☐ Harsh area ☐ Green area

(12) Layout type ☐ Compact layout ☐ Isolated layout

---

4 Transformation process:

13 ☐ Layout changed ☐ Opening changed ☐ Closed balconies

☐ Extension to dwelling plan

Others.....
.....
.....
.....
.....

Appendix 3

Household type

Nuclear household (one family)	91%
Extended household (Multi- family)	9%
Others (please specify)	0%
N/R	0%

No of children from (1 month- 6years):

None	17%	5 person	0%
1 person	39%	6 person	0%
2 person	39%	7 person	0%
3 person	5%	Over 8 persons	0%
4 person	0%	N/R	0%

No of children from (7-18 years):

None	18%	5 person	8%
1 person	23%	6 person	1%
2 person	20%	7 person	0%
3 person	13%	Over 8 persons	0%
4 person	17%	N/R	0%

Number of cars owned

No car	59%	Others	0%
One car	39%	N/R	0%
Two car	1%		
More than two	1%		

Members of the family who go work

None	6%	5 person	0%
1 person	87%	6 person	0%
2 person	7%	Over 7 persons	0%
3 person	0%	N/R	0%
4 person	0%		

Source: Fieldwork, 1995

Appendix 4: Cross table of age of respondents and their feeling about their traditional neighbourhoods in term s of privacy

Age group (years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	34	1	33	1	33	0	0	3	100
31-40	40	82	8	16	1	2	0	0	49	100
41-50	41	93	2	5	1	2	0	0	44	100
51-60	4	80	0	0	1	20	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	5	83	1	17	0	0	0	0	6	100
Total	104	87	12	10	4	3	0	0	120	100

Source: The fieldwork, 1995

Appendix 5: Cross table of age of respondents and their feeling about their traditional neighbourhoods in terms of religion facilities.

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	2	67	0	0	0	0	3	100
31-40	43	88	2	4	4	8	0	0	49	100
41-50	43	98	0	0	1	2	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	12	92	1	8	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	110	92	5	4	5	4	0	0	120	100

Source: The fieldwork, 1995

Appendix 6: Cross table of age of respondents and their feeling about their traditional neighbourhoods in terms of prestige (recreation places).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	1	33	0	0	0	0	3	100
31-40	37	76	4	8	6	12	2	4	49	100
41-50	35	80	5	11	4	9	0	0	44	100
51-60	3	60	1	20	1	20	0	0	5	100
61-70	11	84	1	8	1	8	0	0	13	100
Over 70	4	67	0	0	2	33	0	0	6	100
Total	92	77	12	10	14	12	2	1	120	100

Source: The fieldwork, 1995

Appendix 7: Cross table of age of respondents and their feeling about their traditional neighbourhoods in terms of prestige (neighbours' status).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	37	76	7	14	4	8	1	2	49	100
41-50	32	73	9	20	3	7	0	0	44	100
51-60	3	60	0	0	1	20	1	20	5	100
61-70	8	62	2	15	3	23	0	0	13	100
Over 70	5	83	0	0	1	17	0	0	6	100
Total	87	73	18	15	13	11	2	1	120	100

Source: The fieldwork, 1995

Appendix 8: Cross table of age of respondents and their feeling about their traditional houses in terms of the choice of dwelling (size).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	1	33	2	67	0	0	3	100
31-40	36	74	4	8	9	18	0	0	49	100
41-50	36	82	1	2	7	16	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	96	80	6	5	18	15	0	0	120	100

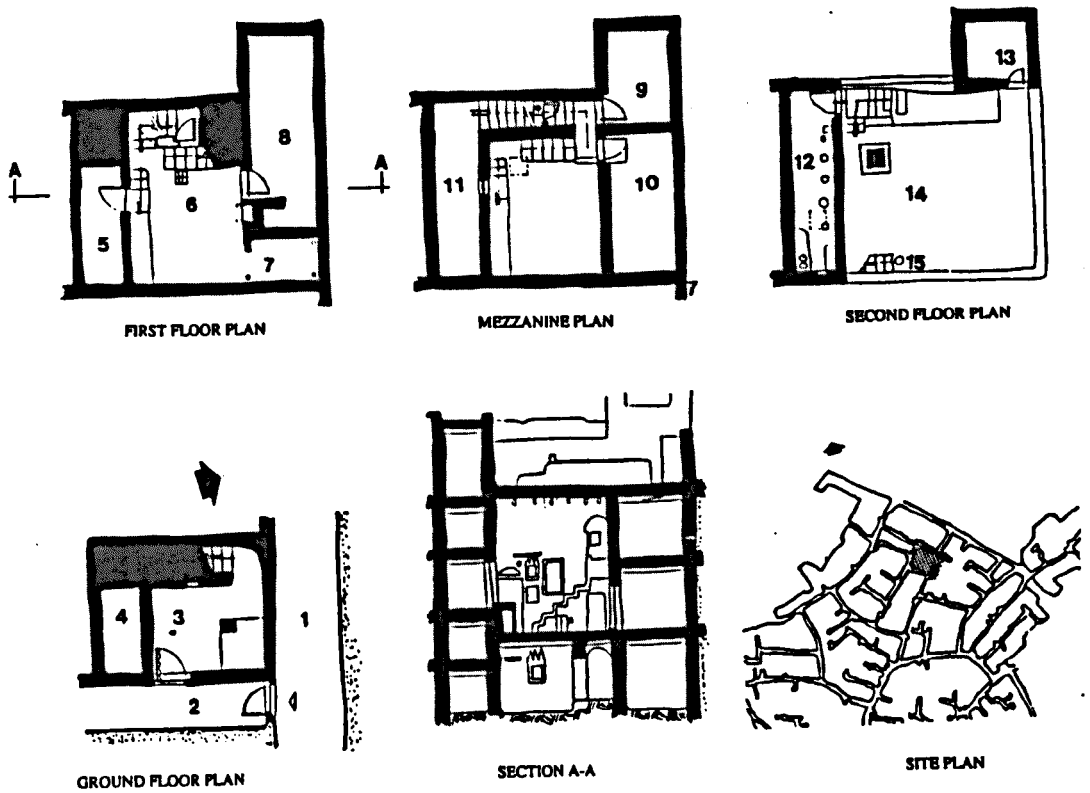
Source: The fieldwork, 1995

Appendix 9:Cross table of age of respondents and their feeling about their traditional houses in terms of the choice of dwelling (layout).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	46	94	1	2	1	2	1	2	49	100
41-50	43	98	1	2	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	114	95	2	2	3	2	1	1	120	100

Source: The fieldwork, 1995

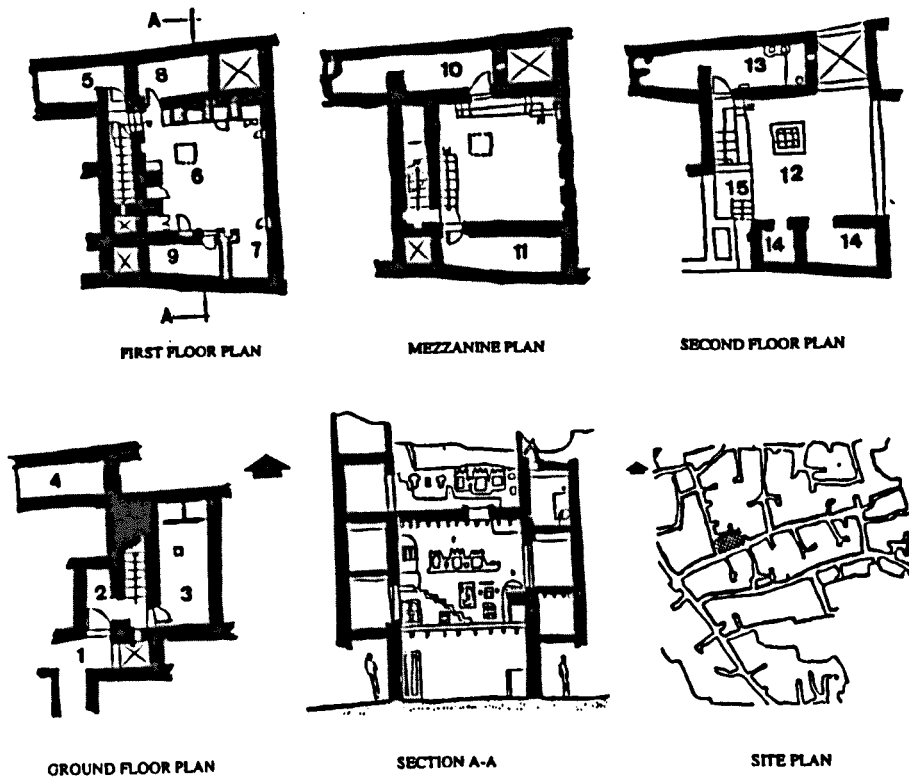
Appendix 10: Traditional Ghadaesian house layout (cont'd)



1-Semi private street
2- Entrance corridor
3- Store room
4- Latrine pit
5- Latrine
6- Guest room
7- Kubba
8- Children's room (girls)
9- Children's room (boys)
10-Master room
11- Store room
12- Roofs terrace
13- Kitchen room
14- Children's sleeping room during summer time
15- Steps leading to neighbour house's roof
Sample location

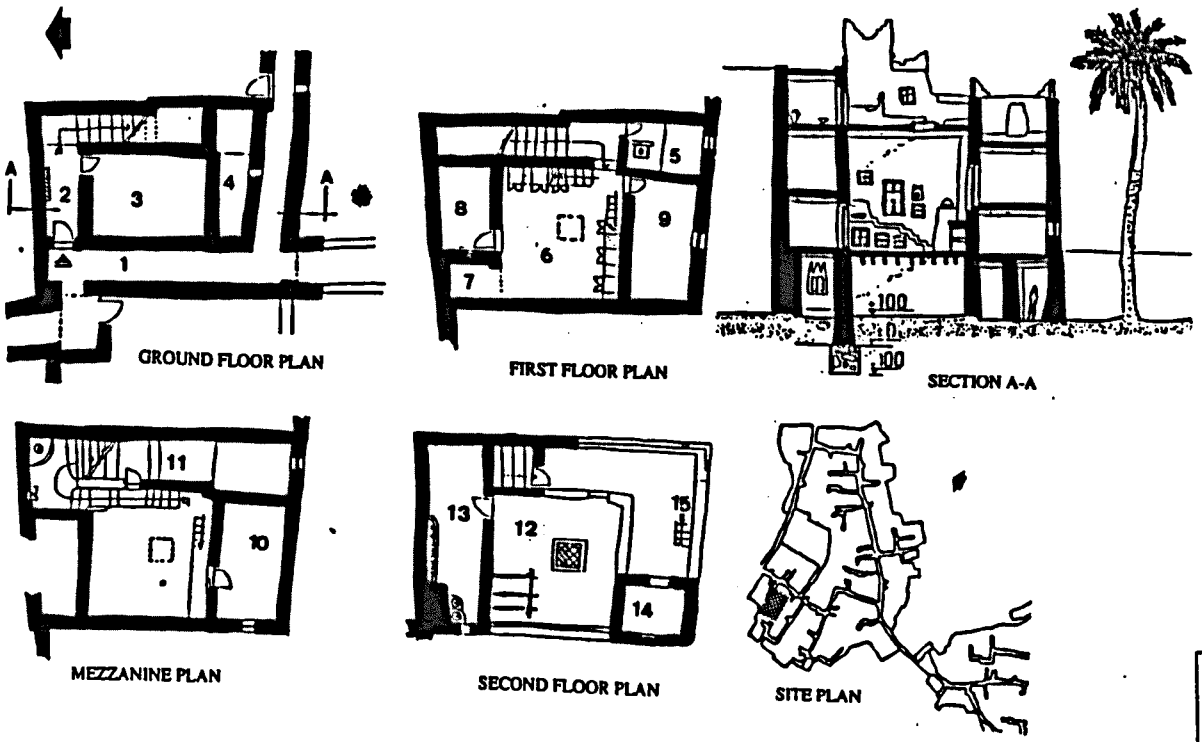
0 5m

Omar's House in the Traditional settlement of Ghadames (Djarrasan neighbourhood)

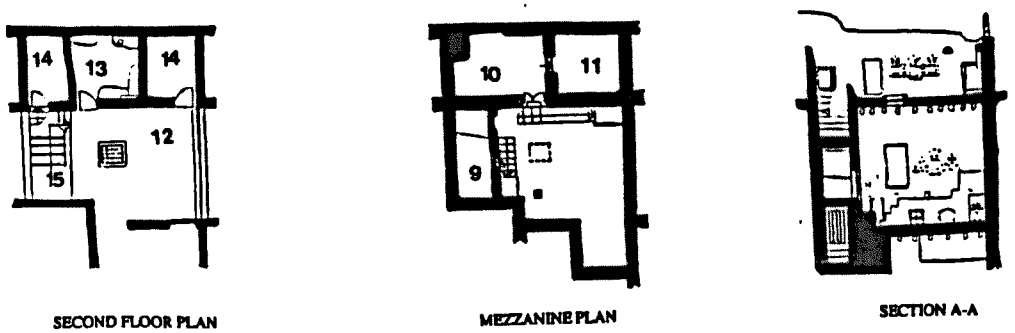


Maghora's House in the Traditional settlement of Ghadames (Tangzin neighbourhood)

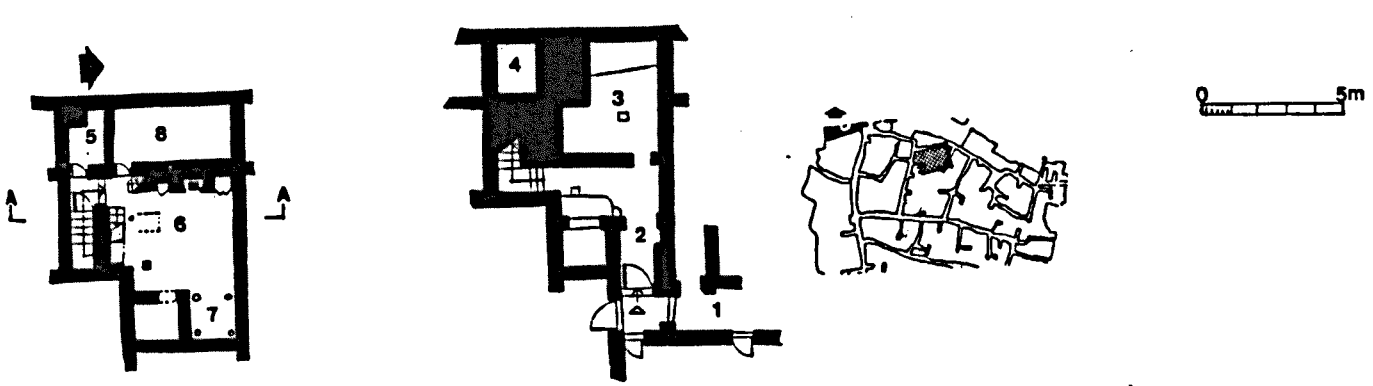
Appendix 10: Traditional Ghadaesian house layout (cont'd)



Traditional house interior space organisation (El Athary House)



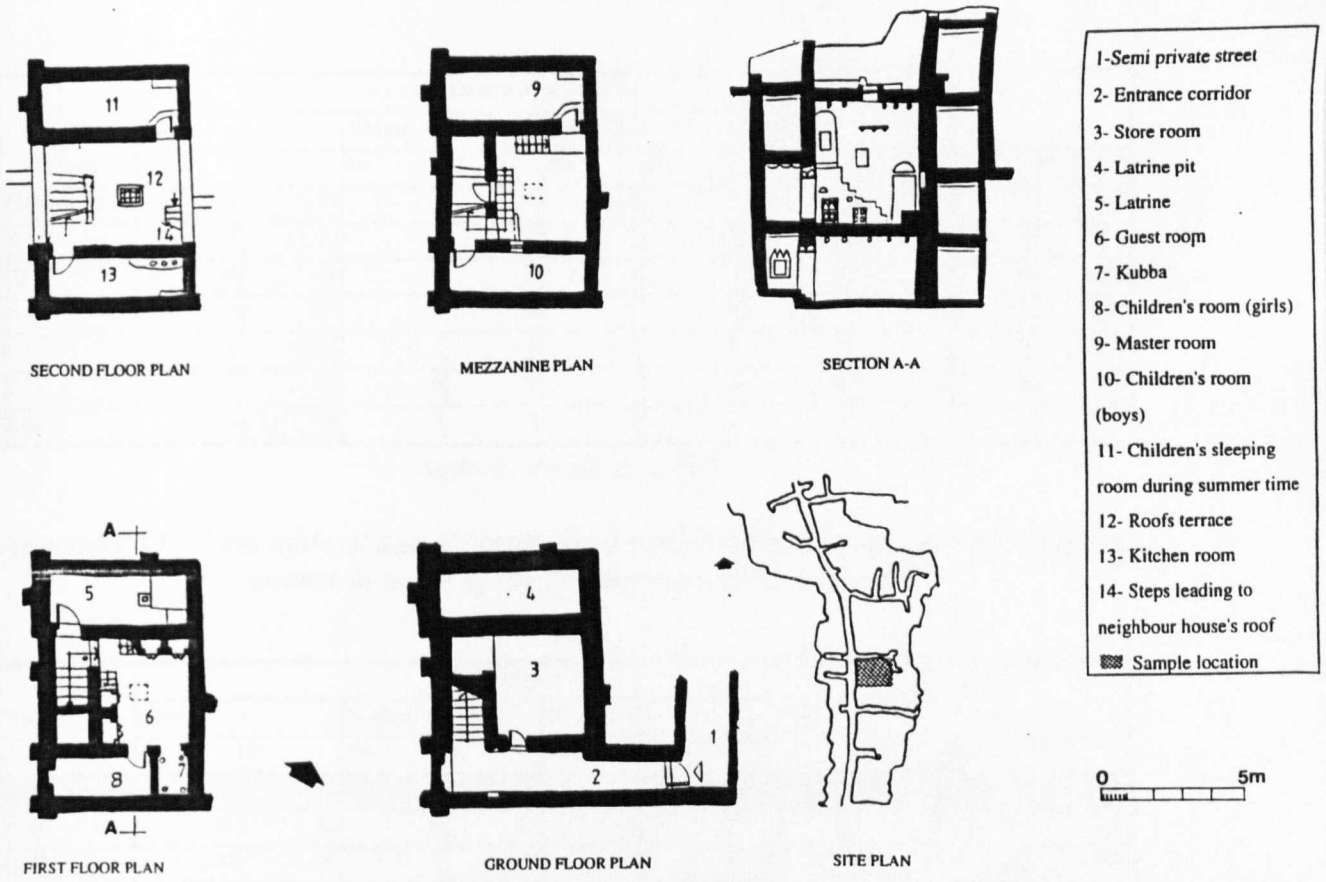
1-Semi private street
2- Entrance corridor
3- Store room
4- Latrine pit
5- Latrine
6- Guest room
7- Kubba
8- Children's room (girls)
9- Children's room (boys)
10-Master room
11- Store room
12- Roofs terrace
13- Kitchen room
14- Children's sleeping room during summer time
15- Steps leading to neighbour house's roof
Sample location



Bokari's House in the Traditional settlement of Ghadames (Tharefra neighbourhood)

Source: Fieldwork, 1995

Appendix 10: Traditional Ghadaesian house layout



Haman's House in the Traditional settlement of Ghadames (Giorsan neighbourhood)

Source: Fieldwork, 1995

Appendix 11: Cross table of age of respondents and their feeling about their traditional houses in terms of the choice of dwelling (type of building materials).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	43	88	2	4	4	8	0	0	49	100
41-50	44	100	0	0	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	113	94	2	2	5	4	0	0	120	100

Source: Fieldwork, 1995

Appendix 12: Cross table of age of respondents and their feeling about their traditional houses in terms of the security (vandalism).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	1	33	0	0	0	0	3	100
31-40	46	94	1	2	1	2	1	2	49	100
41-50	43	98	0	0	1	2	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	12	92	1	8	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	114	95	3	2	2	2	1	1	120	100

Source: Fieldwork, 1995

Appendix 13: Cross table of age of respondents and their feeling about their traditional houses in terms of the privacy (acoustics privacy).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	34	1	33	1	33	0	0	3	100
31-40	42	86	6	12	1	2	0	0	49	100
41-50	42	96	1	2	0	0	1	2	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	110	91	7	6	2	2	1	1	120	100

Source: Fieldwork, 1995

Appendix 14: Cross table of age of respondents and their feeling about their traditional houses in terms of the religion (home orientation).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	41	84	7	14	1	2	0	0	49	100
41-50	41	93	2	5	0	0	1	2	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	108	90	9	8	2	1	1	1	120	100

Source: Fieldwork, 1995

Appendix 15: Cross table of age of respondents and their feeling about their traditional houses in terms of the prestige (quality of the house).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	1	33	1	67	0	0	3	100
31-40	22	45	0	0	27	55	0	0	49	100
41-50	25	57	0	0	19	43	0	0	44	100
51-60	4	80	1	20	0	0	0	0	5	100
61-70	12	92	1	8	0	0	0	0	13	100
Over 70	5	83	1	17	0	0	0	0	6	100
Total	68	57	4	3	48	40	0	0	120	100

Source: Fieldwork, 1995

Appendix 16: Cross table of age of respondents and their feeling about their traditional houses in terms of the prestige (aesthetics).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	49	100	0	0	0	0	0	0	49	100
41-50	44	100	0	0	0	0	0	0	44	100
51-60	5	100	0	0	0	0	0	0	5	100
61-70	13	100	0	0	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	119	99	0	0	1	1	0	0	120	100

Source: Fieldwork, 1995

Appendix 17: Cross table of age of respondents and their feeling about their traditional houses in terms of the prestige (home comfort in terms of climate).

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	39	80	8	16	2	4	0	0	49	100
41-50	40	91	3	7	1	2	0	0	44	100
51-60	4	80	1	20	0	0	0	0	5	100
61-70	12	92	1	8	0	0	0	0	13	100
Over 70	6	100	0	0	0	0	0	0	6	100
Total	103	86	13	11	4	3	0	0	120	100

Source: Fieldwork, 1995

Appendix 18: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of choice (location)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	34	1	33	1	33	0	0	3	100
31-40	7	14	15	30	27	56	0	0	49	100
41-50	7	16	16	36	20	46	1	2	44	100
51-60	0	0	0	0	4	80	1	20	5	100
61-70	2	15	1	8	10	77	0	0	13	100
Over 70	0	0	1	17	5	83	0	0	6	100
Total	17	14	34	28	67	56	2	2	120	100

Source: Fieldwork, 1995

Appendix 19: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of choice (type of neighbours)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	0	0	0	0	3	100	0	0	3	100
31-40	6	12	4	8	39	80	0	0	49	100
41-50	9	20	6	14	29	66	0	0	44	100
51-60	2	40	0	0	3	60	0	0	5	100
61-70	1	8	3	23	9	69	0	0	13	100
Over 70	3	50	0	0	3	50	0	0	6	100
Total	21	18	13	11	86	71	0	0	120	100

Source: Fieldwork, 1995

Appendix 20: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of privacy

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	2	67	0	0	1	33	0	0	3	100
31-40	2	4	4	8	42	86	1	2	49	100
41-50	0	0	4	9	40	91	0	0	44	100
51-60	0	0	1	20	4	80	0	0	5	100
61-70	0	0	0	0	12	92	1	8	13	100
Over 70	0	0	1	17	5	83	0	0	6	100
Total	4	3	10	8	104	87	2	2	120	100

Source: Fieldwork, 1995

Appendix 21: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of prestige (neighbours' status)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	3	6	7	14	38	78	1	2	49	100
41-50	3	7	4	9	36	82	1	2	44	100
51-60	0	0	1	20	4	80	0	0	5	100
61-70	5	38	0	0	8	62	0	0	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	12	10	12	10	94	78	2	2	120	100

Source: Fieldwork, 1995

Appendix 22: Cross table of age of respondents and their feeling about their contemporary neighbourhood in terms of prestige (cleanliness)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	3	100	0	0	0	0	0	0	3	100
31-40	36	73	7	14	5	11	1	2	49	100
41-50	36	82	5	11	2	5	1	2	44	100
51-60	2	40	2	40	1	20	0	0	5	100
61-70	4	31	7	54	2	15	0	0	13	100
Over 70	2	33	3	50	1	17	0	0	6	100
Total	83	69	24	20	11	9	2	2	120	100

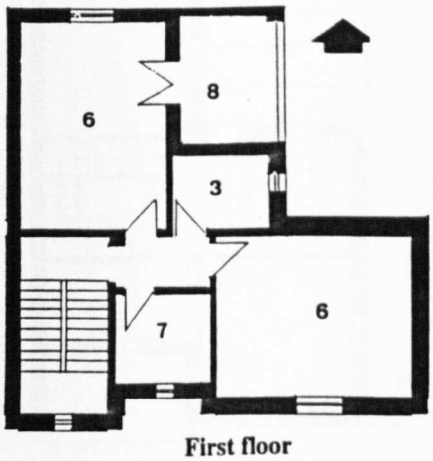
Source: Fieldwork, 1995

Appendix 23: Please, think back: when you decided to move from your previous home, what influnce your decision to select your present home

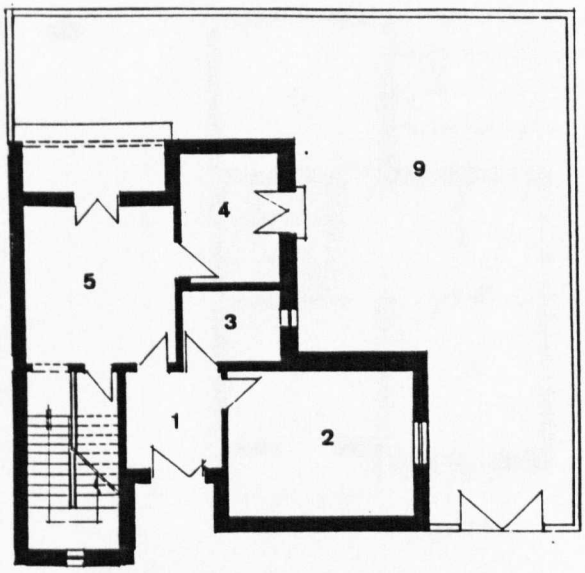
More space required	46%	Sewage system problem	97%
Changes in household needs (Marriage)	12%	Live with parents	0%
The old home need maintenance	88%	Others (please specify)	0%
No parking space	3%	Do not know	0%
		N/R	0%

Source: Fieldwork, 1995

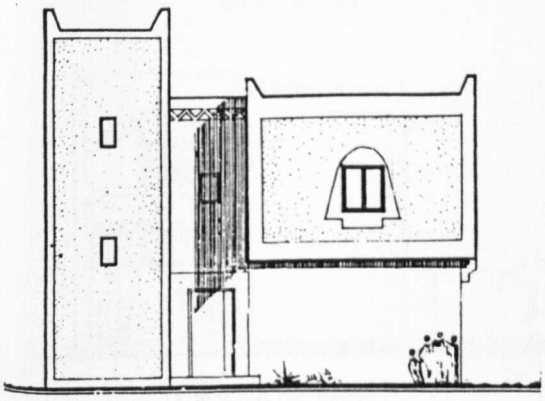
Appendix 24: The dwelling unit types in the contemporary residential area (cont'd)



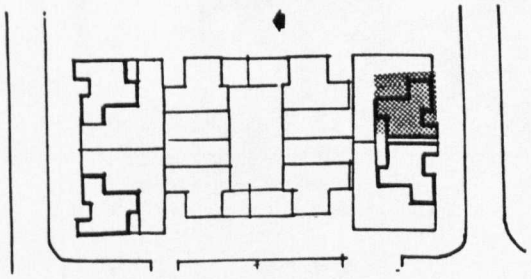
First floor



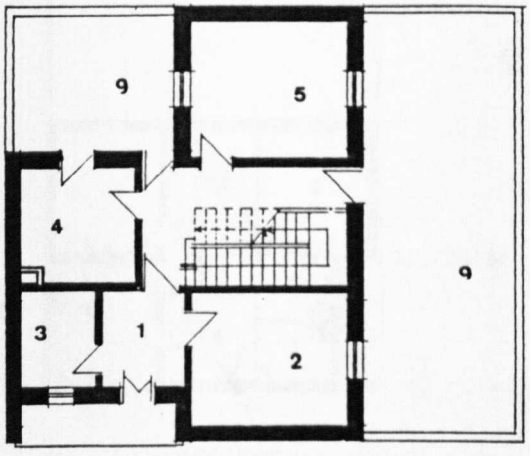
Ground floor



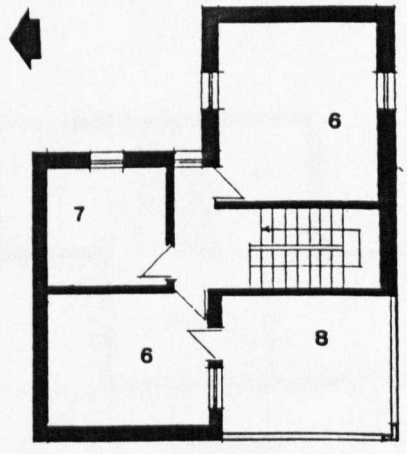
The main elevation



Site plan

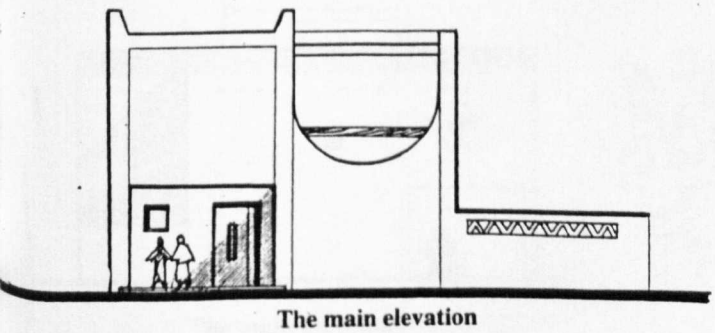


Ground floor

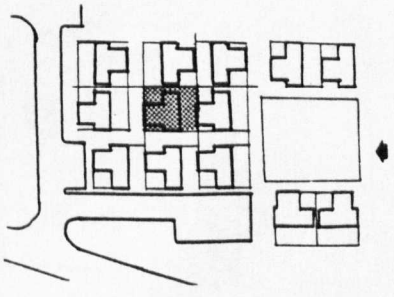


First floor

1- Main entrance hal
2- Guest room
3- Bath room
4- Kitchen room
5- Laving room
6- Bed room
7- Store room
8- Balcony
9- Garden



The main elevation



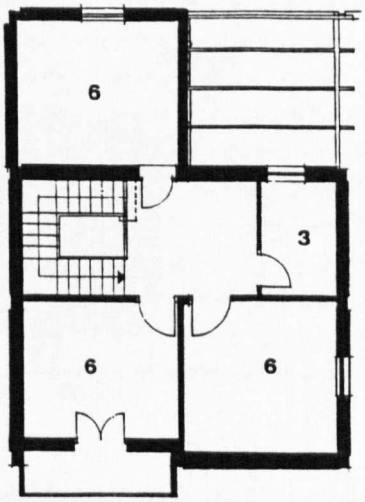
Site plan

0 5m

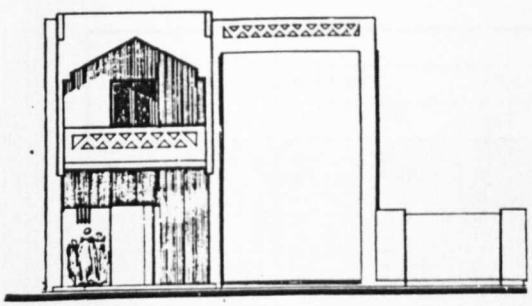
Two bed room dwelling

Appendix 24: The dwelling unit types in the contemporary residential area

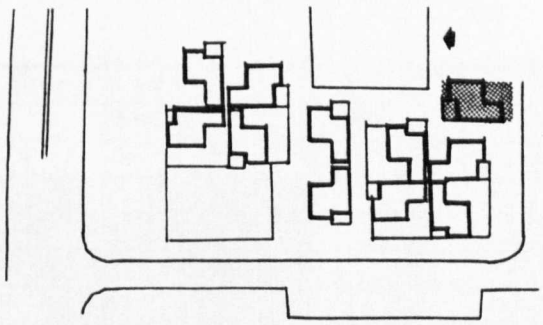
Ground floor



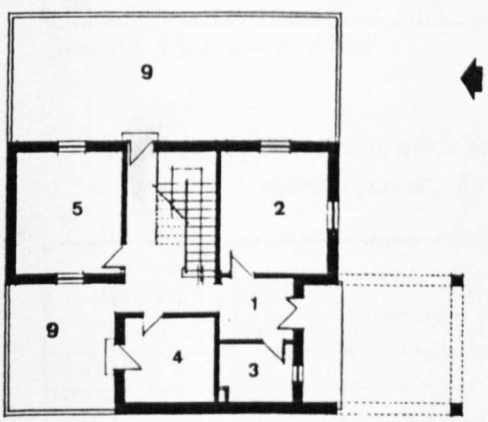
First floor



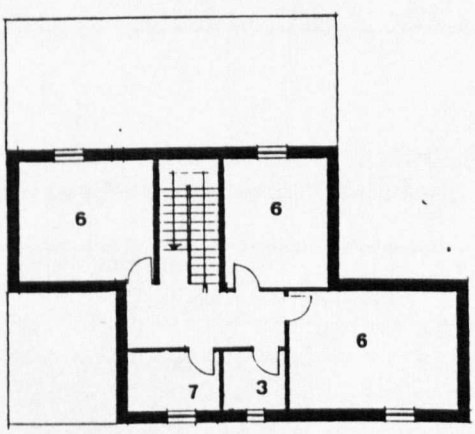
The main elevation



Site plan



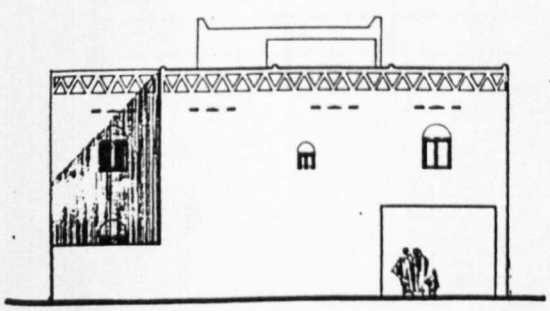
Ground **Ground floor** rs and female level)



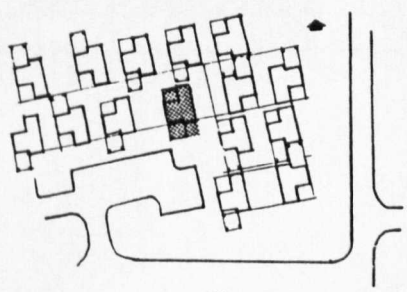
First floor

1- Main entrance hal
2- Guest room
3- Bath room
4- Kitchen room
5- Laving room
6- Bed room
7- Store room
8- Balcony
9- Garden

0 5m



The main elevation



Site plan

Three bed room dwelling

Appendix 25: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of choice (type of dwelling)

Age group (Years)	Degree of satisfaction								Total
	Satisfied		Neutral		Dissatisfied		No reply		
	No	%	No	%	No	%	No	%	No
20-30	1	34	1	33	1	33	0	0	3
31-40	12	25	4	8	32	65	1	2	49
41-50	2	4	6	14	36	82	0	0	44
51-60	1	20	0	0	4	80	0	0	5
61-70	0	0	0	0	13	100	0	0	13
Over 70	0	0	1	17	5	83	0	0	6
Total	16	13	12	10	91	76	1	1	120

Source: Fieldwork, 1995

Appendix 26: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of choice (dwelling layout)

Age group (Years)	Degree of satisfaction								Total
	Satisfied		Neutral		Dissatisfied		No reply		
	No	%	No	%	No	%	No	%	No
20-30	0	0	1	33	2	67	0	0	3
31-40	1	2	0	0	47	96	1	2	49
41-50	1	2	0	0	43	98	0	0	44
51-60	0	0	2	40	3	60	0	0	5
61-70	0	0	1	8	12	92	0	0	13
Over 70	0	0	0	0	6	100	0	0	6
Total	2	2	4	3	113	94	1	1	120

Source: Fieldwork, 1995

Appendix 27: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of security (vandalism)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	8	16	3	6	38	78	0	0	49	100
41-50	5	11	3	7	36	82	0	0	44	100
51-60	0	0	1	20	4	80	0	0	5	100
61-70	1	8	0	0	12	92	0	0	13	100
Over 70	3	50	0	0	3	50	0	0	6	100
Total	18	15	7	6	95	79	0	0	120	100

Source: Fieldwork, 1995

Appendix 28: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of privacy (visual privacy)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	4	8	2	4	43	88	0	0	49	100
41-50	0	0	0	0	44	100	0	0	44	100
51-60	1	20	1	20	3	60	0	0	5	100
61-70	0	0	0	0	13	100	0	0	13	100
Over 70	1	17	0	0	5	83	0	0	6	100
Total	7	6	3	2	110	92	0	0	120	100

Source: Fieldwork, 1995

Appendix 29: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of religion (dwelling relation with mosque)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	4	8	2	4	43	88	0	0	49	100
41-50	0	0	0	0	44	100	0	0	44	100
51-60	0	0	0	0	5	100	0	0	5	100
61-70	0	0	0	0	13	100	0	0	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	5	4	2	2	113	94	0	0	120	100

Source: Fieldwork, 1995

Appendix 30: Cross table of age of respondents and their feeling about their contemporary dwelling in terms of prestige (home comfort in terms of climatic)

Age group (Years)	Degree of satisfaction								Total	
	Satisfied		Neutral		Dissatisfied		No reply			
	No	%	No	%	No	%	No	%	No	%
20-30	1	33	0	0	2	67	0	0	3	100
31-40	0	0	7	14	41	84	1	2	49	100
41-50	1	2	1	2	42	96	0	0	44	100
51-60	0	0	0	0	5	100	0	0	5	100
61-70	1	8	0	0	12	92	0	0	13	100
Over 70	0	0	0	0	6	100	0	0	6	100
Total	3	3	8	6	108	90	1	1	120	100

Source: Fieldwork, 1995

Appendix 31: How would you feel about moving from the dwelling which you now live in?

I would very much want to move	23%	I would want very much to stay where I now live	0%
I would rather move than to stay where I am now	65%	Don't know	0%
It would make no difference to me	10%	N/R	0%
I would rather stay where I am now than to move	2%		

Source: Fieldwork, 1995

اخي المواطن / اختي المواطنة بمدينة غدامس

السلام عليكم ورحمة الله وبركاته

أنا ابوبكر محمد الشاوش طالب دراسات عليا أقوم بتحضير درجة الدكتوراه في مجال الهندسة المعمارية بجامعة نيوكاسل ببريطانيا وحيث أن مجال بحثي هو تصميم المسكن المناسب للأسرة العربية الليبية بالجماهيرية العظمى وذلك لتحقيق البيئة السكنية الملائمة للقيم الأجتماعية والثقافية ويأتي هذا من خلال تقييم الوضع الحالي للبيت القديم والحديث ومدى ملائمتهما لهذه القيم وتعتبر مدينة غدامس مثالا حيا للعمارة القديمة والحديثة وبهذا تدوّن اقتراحاتكم وملاحظاتكم بهذا الأستبيان سيساهم مساهمة فاعلة في الوصول الى نتائج أفضل لهذه الدراسة. كما أود أن نعلمكم بأن الغرض الأساسي لهذا الأستبيان غرضا علميا محضا وهو لا يلزمكم بذكر أسمائكم أو أي شيء يتعلق بأموركم الخاصة والتي لا ترغبون في ذكرها وكذلك كل المعلومات ستكون في غاية السرية ولا تستعمل ألا في هذه الدراسة فقط. وغير ملزمين في الأجابة عن السؤال الذي لا ترغبون في الأجابة عنه.

وشكرا لحسن تعاونكم.

أ. معلومات اساسية:

في البداية نود ان نعرف بعض المعلومات عن شخصكم الكريم وعن باقي فراد اسرتك والتي ستفيد هذه الدراسة في تصنيف وتحليل اجوبتكم.

العنوان: .....

الأسم: .....

رقم المسكن: .....

رقم الزيارة

الزيارة	التاريخ	الوقت		الزيارة	التاريخ	الوقت	
الأولى			١	الثالثة			٣
الثانية			٢	لاتوجد اجابة			١٢

الحالة الأقتصادية والأجتماعية للأسرة

١) الحالة الأجتماعية لرب الأسرة

ذكر: مفرد	١	أنثى: مفردة	٥
ذكر: متزوج	٢	أنثى: أرملة	٦
ذكر: ارمل	٣	أنثى: مطلقة	٧
ذكر: مطلق	٤	لا توجد اجابة	١٢

٢) عمر رب الأسرة

٢٠-٣٠	١	٦١-٧٠	٥
٣١-٤٠	٢	اكبر من ٧٠ سنة	٦
٤١-٥٠	٣	لا ادري	٠
٥١-٦٠	٤	لا توجد اجابة	١٢

٣) مهنة رب الأسرة:

موظف تابع للدولة	١
موظف في مكتب خاص	٢
مهني (تاجر ، مزارع)	٣
متقاعد	٤
عاطل عن العمل	٥
لا توجد اجابة	١٢

٤) نوع الأسرة

أسرة واحدة	١
أكثر من اسرة	٢
آخر (حدد رجاءا)	٣
لا توجد اجابة	١٢

٥) حجم الأسرة

١ شخص	١	٧ شخص	٧
٢ شخص	٢	٨ شخص	٨
٣ شخص	٣	٩ شخص	٩
٤ شخص	٤	١٠ شخص	١٠
٥ شخص	٥	اكثر من ١١ شخص	١١
٦ شخص	٦	لا توجد اجابة	١٢

٦) عدد الذكور في الأسرة

صفر	١	٥ شخص	٦
١ شخص	٢	٦ شخص	٧
٢ شخص	٣	٧ شخص	٨
٣ شخص	٤	اكثر من ٧	٩
٤ شخص	٥	لاتوجد اجابة	١٢

٧) عدد الأناث في الأسرة

صفر	١	٥ شخص	٦
١ شخص	٢	٦ شخص	٧
٢ شخص	٣	٧ شخص	٨
٣ شخص	٤	اكثر من ٧	٩
٤ شخص	٥	لاتوجد اجابة	١٢

٨) عدد الأطفال التي اعمارهم شهر - ٦ سنوات

صفر	١	٥ طفل	٦
١ طفل	٢	٦ طفل	٧
٢ طفل	٣	٧ طفل	٨
٣ طفل	٤	اكثر من ٨ أطفال	٩
٤ طفل	٥	لاتوجد اجابة	١٢

٩) عدد الأطفال التي اعمارهم ٧- ١٨ سنة

صفر	١	٦ طفل	٦
١ طفل	٢	٧ طفل	٧
٢ طفل	٣	٨ طفل	٨
٣ طفل	٤	اكثر من ٨ أطفال	٩
٤ طفل	٥	لاتوجد اجابة	١٢

١٠) أفراد الأسرة التي أعمارهم ١٩-٥٩ سنة

صفر	١	٥ شخص	٦
١ شخص	٢	٦ شخص	٧
٢ شخص	٣	٧ شخص	٨
٣ شخص	٤	اكثر من ٨ اشخاص	٩
٤ شخص	٥	لاتوجد اجابة	١٢

١١) عدد المسنين بالأسرة

صفر	١	اكثر من ٥ اشخاص	٦
١ شخص	٢	لاتوجد اجابة	٧
٢ شخص	٣		
٣ شخص	٤		
٤ شخص	٥		

١٢) عدد أفراد الأسرة الذين يذهبون الى المدرسة

صفر	١	٥ شخص	٦
١ شخص	٢	٦ شخص	٧
٢ شخص	٣	٧ شخص	٨
٣ شخص	٤	أكبر من ٨ اشخاص	٩
٤ شخص	٥	لاتوجد اجابة	١٢

١٣) عدد أفراد الأسرة الذين يذهبون الى العمل

صفر	١	٥ شخص	٦
١ شخص	٢	٦ شخص	٧
٢ شخص	٣	اكثر من ٧ اشخاص	٨
٣ شخص	٤	لاتوجد اجابة	١٢
٤ شخص	٥		

١٤) الدخل الشهري للأسرة بالدينار الليبي

اقل من ١٢٠	١	٣٠١-٤٠٠	٥
١٢١-١٥٠	٢	اكثر من ٤٠٠	٦
١٥١-٢٠٠	٣	آخر (حدد رجاءا)	٧
٢٠١-٣٠٠	٤	لاتوجد اجابة	١٢

١٥) عدد السيارات التي تملكها الأسرة

لاتملك سيارة	١	آخر (حدد رجاءا)	٥
سيارة واحدة	٢	لاتوجد اجابة	١٢
سيارتين	٣		
اكثر من سيارتين	٤		

ب: الظروف السكنية للبيت القديم

نود ان نسألك بعض الأسئلة عن بيتك القديم:

١٦) أين كنت تسكن قبل ان تنتقل للبيت الحالي

بمدينة غدامس	١
خارج مدينة غدامس	٢
لا توجد اجابة	١٢

١٧) كم مدة الأقامة في البيت القديم

١-٤ سنوات	١	آخر (حدد رجاءا)	٥
٥-٩ سنوات	٢	لا أدري	٠
١٠-١٤ سنة	٣	لا توجد اجابة	١٢
اكثر من ١٥ سنة	٤		

١٨) نوع السكن الذي كنت تسكنه قبل ان تنتقل الى بيتك الحالي

بيت غدامسي	١	شقة في مبنى مكونة من ٣ -٤ دور	٥
في مساكن ملاصقة	٢	شقة في مبنى اكثر من ٤ ادوار	٦
بيت قروي	٣	آخر (حدد رجاءا)	٧
شقة في مبنى مكونة من ١-٢ دور	٤	لا توجد اجابة	١٢

١٩) ما نوع مسكنك القديم من حيث مواد البناء المستعملة

طين	١	مسبق التصنيع	٤
حجر طبيعي	٢	آخر (حدد رجاءا)	٥
خرسانة مسلحة	٣	لا توجد اجابة	١٢

٢٠) هل تملك بيتك القديم، أم كان مؤجرا، او كنت تعيش فيه من دون ايجار؟

مؤجر	١	ورث (ملك لكل العائلة)	٤
ملك خاص	٢	آخر (حدد رجاءا)	٥
ملك للدولة	٣	لا توجد اجابة	١٢

٢١) عدد غرف النوم بالبيت

واحد	١	اربعة	٤
اثنان	٢	اكثر من خمسة	٥
ثلاثة	٣	لا توجد اجابة	١٢

٢٢) عدد غرف الضيافة بالبيت

واحد	١	لاتوجد اجابة	١٢
اثنان	٢		
اكثر من اثنين	٣		

٢٣) عدد المطابخ بالبيت

واحد	١
اكثر من اثنان	٢
لا توجد اجابة	٣

٢٤) عدد الحمامات بالبيت

واحد	١
اكثر من اثنان	٢
لا توجد اجابة	٣

ج. الظروف السكنية للبيت الحالي

اخي المواطن نود ان نسألك بعض الأسئلة عن بيتك الحالي

٢٥) من فضلك فكر في الماضي لماذا قررت الأنتقال للبيت الحالي مع ذكر الظروف التي جعلتك تتخذ هذا القرار.

نحتاج لمكان اكبر	١	مشكلة الجاري	٥
تغير حجم الأسرة(زواج ابن)	٢	كنت اعيش مع الوالدين	٦
البيت القديم يحتاج لصيانة	٣	آخر (حدد رجاءا)	٧
لاتوجد موقف للسيارات	٤	لا توجد اجابة	١٢

٢٦) هل هذا هو البيت الأول الذي انتقلت اليه من البيت القديم

لا	١
نعم	٢
لا توجد اجابة	١٢

٢٧) اذا كان (لا) اذكر الأسباب

لأعيش قرب جيران أقارب لي	١	مشاكل مع الجيران	٥
موقع المدرسة من البيت	٢	آخر (حدد رجاءا)	٦
الخدمات العامة	٣	لا ادري	٠
موقع المسجد	٤	لا توجد اجابة	١٢

٢٨) ما نوع السكن الذي تشغله الآن

فيلا	١	شقة في مبنى مكونة من ٣-٤ ادوار	٥
مساكن ملاصقة	٢	شقة في مبنى مكونة من اكثر من ٤ ادوار	٦
بيت عربي	٣	آخر (حدد رجاءا)	٧
شقة في مبنى مكونة من ١-٢ دور	٤	لا توجد اجابة	١٢

٢٩) هل تملك بيتك الحالي

مؤجر	١	آخر (حدد رجاءا)	٤
مالك جديد	٢	لا توجد اجابة	١٢
المالك الأصلي	٣		

٣٠) كم مدة اقامتك في بيتك الحالي

١-٤ سنوات	١	آخر (حدد رجاءا)	٥
٥-٩ سنوات	٢	لا أدري	٠
١٠-١٤ سنة	٣	لا توجد اجابة	١٢
اكثر من ١٥ سنة	٤		

٣١) عدد غرف النوم في البيت الذي تسكنه

غرفة واحدة	١	اربعة غرف	٤
اثنان غرفة	٢	اكثر من خمسة غرف	٥
ثلاثة غرف	٣	لا توجد اجابة	١٢

٣٢) عدد غرف الضيافة في البيت الذي تسكنه

غرفة واحدة	١	لاتوجد اجابة	١٢
اثنان غرف	٢		
اكثر من اثنين غرف	٣		

٣٣) عدد المطابخ في البيت الذي تسكنه

واحد	١
اكثر من اثنان	٢
لا توجد اجابة	٣

٣٤) عدد الحمامات في البيت الذي تسكنه

واحد	١
اكثر من اثنان	٢
لا توجد اجابة	٣

د. تقييم السكن القديم والحديث

أخي المواطن هذه قائمة لأمور تتعلق بالمسكن من حيث ملائمته للقيم الأجتماعية والثقافية التي لها الأثر الكبير في البيئة السكنية ويهتم بها الناس كثيرا. هنا نود أن نعرف مامدى رضاك من كل من البيت القديم الذي كنت تسكنه والبيت الحالي من حيث ملائمتهما لقيمك الأجتماعية والثقافية التي تخصك.

(١) راضي (٢) متوسط (٣) غير راضي

(٠) لا ادري (١٢) لا توجد اجابة

١) ما مدى رضاك عن الفرصة التي منحت لك لأختيار وحدتك السكنية من حيث:

السؤال	أ. القديم ١	٢	٣	٠	١٢	ب. الحالي ١	٢	٣	٠	١٢
٣٥) موقع البيت من المدرسة، السوق، الخدمات العامة، المسجد										
٣٦) نوع السكن										
٣٧) حجم السكن										
٣٨) نوع الجيران										
٣٩) تخطيط المسكن										
٤٠) نوع مواد البناء										

اضافات اخرى ترونها مناسبة

السؤال	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢

II. ما مدى رضاك عن مسكنك من حيث الخصوصية

السؤال	أ. القديم ١	٢	٣	٠	١٢	ب. الحديث ١	٢	٣	٠	١٢
٤١) الخصوصية بين الذكور والاناث بالمسكن										
٤٢) الخصوصية من حيث انتقال الصوت بين الذكور والاناث بالمسكن										
٤٣) الخصوصية من الجيران والشارع										
٤٤) خصوصية الأطفال الذكور والأناث من حيث غرف النوم										
٤٥) خصوصية نوم الوالدين										
٤٦) التنظيم الداخلي للبيت (موقع المطبخ، الحمام، غرفة المعيشة، وغرفة النوم)										

اضافات اخرى ترونها مناسبة:

السؤال	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢

III. ما مدى رضاك عن مسكنك من حيث السلامة والأمان:

السؤال	أ. القديم					ب. الحديث				
	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢
٤٧) من حيث السرقة										
٤٨) موقع المدرسة من حيث سلامة الأطفال										
٤٩) موقع اماكن لعب الأطفال										
٥٠) موقع السكن من حيث الأمن والسلامة										
٥١) التخريب (العبث بالحديقة ونوافذ البيت)										
٥٢) الماكن المخصصة للسيارة من حيث السلامة										
٥٣) موقع الخدمات العامة مثل اماكن المحلات التجارية										

اضافات اخرى ترونها مناسبة

السؤال	أ. القديم					ب. الحديث				
	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢

IV. ما مدى رضاك عن مسكنك من حيث ملائمته للجانب الديني

السؤال	أ. القديم					ب. الحديث				
	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢
٥٤) توجيه المسكن										
٥٥) وضعية المرأة في البيت (السترة)										
٥٦) العلاقة مع الجيران										
٥٧) العلاقة مع الأماكن العمومية										
٥٨) المكان المخصص للمرأة داخل البيت (للأنشطة النسائية اليومية)										
٥٩) تصميم الحمام										
٦٠) العلاقة مع المسجد										

اضافات اخرى ترونها مناسبة

السؤال	أ. القديم					ب. الحديث				
	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢

V. ما مدى رضاك عن مسكنك من حيث ملائمته لمكانتك الأجتماعية (من حيث الأحترام).

السؤال	أ. القديم					ب. الحديث				
	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢
٦١) جودة الأنشاء										
٦٢) جودة المرافق الأساسية										
٦٣) حجم الفراغ الداخلي										
٦٤) نوع الجيران										
٦٥) راحة المسكن من حيث المناخ										
٦٦) الناحية الجمالية										
٦٧) موقع البيت (في المجاورة السكنية والمدنية)										

اضافات اخرى ترونها مناسبة

السؤال	١	٢	٣	٠	١٢	١	٢	٣.	٠	١٢

VI. بشكل عام ما مدى رضاك عن بيتك القديم والحالي من حيث مستوى المجاورة السكنية التي تقع بها.

	أ. القديم					ب. الحديث				
اختيار المجاورة من حيث:	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢
٦٨) موقع المجاورة من ناحية الخدمات العامة										
٦٩) نوع الجيران										
٧٠) العلاقة مع الجيران										
السلام والأمان										
٧١) موقع اماكن لعب الأطفال										
٧٢) السرقة										
٧٣) من حيث الخصوصية										
٧٤) الجانب الديني										
الأحزام										
٧٥) اماكن الراحة										
٧٦) الجيران										
٧٧) النظافة والصيانة										

اضافات اخرى ترونها مناسبة

السؤال	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢

VII بشكل عام ما مدى رضاك عن بيتك القديم والحالي من حيث موقعه بالتجمع السكني مؤخذ في الأعتبار قيمك الأجتماعية والثقافية

	أ. القديم					ب. الحديث				
السؤال	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢
٧٨) اختيار التجمع من حيث الموقع ومكان العمل والخدمات الاخرى التي تهمك.										
٧٩) الأحزام في المجتمع										
٨٠) الخصوصية في التجمع										
٨١) مراعاة الجانب الديني في التجمع										
٨٢) السلامة والأمان بالتجمع										

اضافات اخرى ترونها مناسبة

السؤال	١	٢	٣	٠	١٢	١	٢	٣	٠	١٢

٨٣) هل تحب ان تغير المسكن اذا اتيحت لك الفرصة

لا	.		١
نعم	.		٢
لا توجد اجابة			١٢

٨٤) اذا كان (نعم) كيف تشعر من حيث التغيير

كثيرا جدا	١	جدا احبذ البقاء	٥
التغيير اكثر من البقاء	٢	لاادري	٠
لا فرق	٣	لا توجد اجابة	١٢
احبذ البقاء عن الأنتقال	٤		

٨٥) ماهي الأشياء التي تجعلك غير راضي عن البيت الحالي

الموقع	١	الأشياء الخارجية	٦
وضعية المسكن من حيث التخطيط	٢	آخر (حدد رجاءا)	٧
توزيع الفراغ الداخلي	٣	لاادري	٠
نوع الجيران	٤	لا توجد اجابة	١٢
نوعية التصميم	٥		

٥. التغييرات التي يحدثها السكان على وحداتهم السكنية

هل هذه هي المجاورة السكنية الأولى التي انتقلت اليها منذ انتقالك من المجاورة القديمة.

٨٦) اذا كان الجواب (لا) اذكر الأسباب

ابحث عن جيران اقارب لي	١	مشاكل مع الجيران	٦
ابحث عن اصدقاء	٢	آخر (حدد رجاءا)	٧
موقع المدرسة	٣	لاادري	٠
الخدمات العامة	٤	لا توجد اجابة	١٢
موقع المسجد	٥		

٨٧) عندما يكون عندك ضيف هل تكون غير مرتاح؟

لا	١
نعم	٢
لا توجد اجابة	١٢

لماذا .....

.....

٨٨) اذا كان الجواب نعم هل تكون الغرف الآتية في وضعية غير مناسبة؟

موقع المطبخ	١	موقع حجر النوم	٦
موقع حجرة الجلوس	٢	آخر (حدد رجاءا)	٧
موقع حجرة الضيوف	٣	لاادري	٠
موقع حجرة الأكل	٤	لا توجد اجابة	١٢
موقع الحمامات	٥		

٨٩) هل أدخلت أي تعديلات على هذه الوحدة السكنية؟

لا	١
نعم	٢
لا توجد اجابة	١٢

٩٠) اذا كان الجواب نعم فما هي؟

اضافية غرفة	١	اضافة اسلاك حديد على النوافذ	٨
تقسيم غرف	٢	اضافة باب حديد	٩
غلق فتحات	٣	جهاز انذار	١٠
تغيير اتجاه	٤	آخر (حدد رجاءا)	١١
توسيع الفناء	٥	لا أدري	٠
تغيير غرف (مثلا من نوم الى مخزن او من نوم الى جلوس الخ).	٦	لا توجد اجابة	١٢
غلق بلكونه	٧		

٩١) هل توجد أي تغييرات لم تستطيع تنفيذها؟

لا	١
نعم	٢
لا توجد اجابة	١٢

٩٢) اذا كان الجواب (نعم) فما هي؟

اضافة غرفة	١	اضافة اسلاك حديد على النوافذ	٨
تقسيم غرف	٢	اضافة باب حديد	٩
غلق فتحات	٣	جهاز انذار	١٠
تغيير اتجاه	٤	آخر (حدد رجاءا)	١١
توسيع الفناء	٥	لا أدري	٠
تغيير غرف	٦	لا توجد اجابة	١٢
غلق بلكون	٧		

٩٣) لماذا لم تستطيع تنفيذها؟

عدم توفر المال الكافي	١
الأرض صغيرة	٢
مشاكل مع الجيران	٣
مشكلة في التنفيذ	٤
عدم الحصول على رخصة	٥
لا توجد اجابة	١٢

٩٤) هل ترى ان التغييرات التي قمت بها أثرت على البيئة السكنية للبيت؟

كثيرا جدا	١
كثيرا	٢
لا ابدا	٣
قليلا	٤
قليلا جدا	٥
آخر (حدد رجاءا)	٦
لا أدري	٠
لا توجد اجابة	١٢

وضح كيف .....

.....

القسم الثاني : البيت الذي يفضله الساكن

اذا اتيحت لك الفرصة في الحصول أو بناء مسكن لك أو لأحد أولادك كيف يجب ان يكون ذلك البيت؟

٩٥) مانوع التجمع السكني الذي تفضله؟

مثل التجمع القديم	١
مثل التجمع الحالي	٢
آخر (حدد رجاءا)	٣
لا أدري	٠
لا توجد اجابة	١٢

٩٦) لماذا فضلت هذا النوع من التجمع السكني؟

مناسب من حيث الموقع	١
مناسب من حيث المجاري والطرق	٢
مخطط المباني	٣
الخدمات العامة	٤
آخر (حدد رجاءا)	٥
لا أدري	٠
لا توجد اجابة	١٢

٩٧) ما هي المجاورة السكنية التي تفضلها؟

مثل المجاورة القديمة	١
مثل المجاورة الحالية	٢
آخر (حدد رجاءا)	٣
لا أدري	٠
لا توجد اجابة	١٢

٩٨) لماذا فضلت هذا النوع من المجاورة؟

مخططة حسب رغبتي	١
اكثر سلامة وامان	٢
مناسبة الفراغ الخارجي للخصوصية	٣
توفر الخدمات الدينية	٤
محزمة اكثر	٥
آخر (حدد رجاءا)	٦
لا أدري	٠
لا توجد اجابة	١٢

٩٩) ما نوع المسكن الذي تفضله؟

مسكن مستقل	١	شقة في مبنى مكونة من ٣-٤ دور	٥
مساكن متلاصقة	٢	شقة في مبنى اكثر من ٤ ادوار	٦
البيت الغداصي	٣	آخر (حدد رجاءا)	٧
شقة في مبنى مكونة من ١-٢ دور	٤	لا توجد اجابة	١٢

١٠٠) لماذا فضلت هذا النوع من السكن؟

مخططة حسب رغبتي	١
اكثر سلامة وامان	٢
مراع فيه الخصوصية	٣
توفر الخدمات الدينية	٤
محزمة اكثر	٥
آخر (حدد رجاءا)	٦
لا أدري	٠
لا توجد اجابة	١٢

١٠١) أي من العناصر الآتية تفضل أن تكون في بيتك في المستقبل؟

فناء خارجي	١	آخر (حدد رجاءا)	٥
فناء داخلي	٢	لا أدري	٠
بدون فناء	٣	لا توجد اجابة	١٢

١٠٢) كيف تحبذ ان يكون تصميم بيتك في المستقبل؟

تصميم عربي	١	آخر (حدد رجاءا)	٥
تصميم غربي	٢	لا أدري	٠
تصميم مختلط غربي وعربي	٣	لا توجد اجابة	١٢

رتب العناصر الآتية حسب أهميتها في نظرك

(١) مهم جدا (١٣) أقل أهمية

السؤال	١	٢	٣	٤	٥	٦	٧	٨	٩	١٠	١١	١٢
١٠٣) موقع البيت												
١٠٤) الحجم الداخلي والخارجي للبيت												
١٠٥) ملائمة البيت لقيمك الأجتماعية والثقافية												
١٠٦) المظهر الخارجي												
١٠٧) الخدمات العامة												
١٠٨) مواد البناء												
١٠٩) تنظيم الفراغ												
١١٠) نوع الأثاث												
١١١) حجم وموقع غرفة الضيوف												
١١٢) موقع المطبخ والحمامات												
١١٣) الحجم الداخلي للفراغ												
١١٤) الحجم الخارجي للفراغ												

نشكركم على حسن تعاونكم

Appendix 32: Translate questionnaire in English from Arabic

Dear Resident in Ghadames City:
My name is Abubaker Mohamed Shawesh. I am doing my PhD in architecture at the University of Newcastle Upon Tyne in England. I am doing a research project on acceptable housing design for the Libyan Arab Jamahiriya society. This will be done by measuring people's satisfaction and housing preferences of the existing housing both traditional and contemporary.

I would appreciate it if you could answer this questionnaire. Your answers will be a great help to assess the suitability of the existing housing (both modern and traditional) in the country to their occupants, in terms of their socio-cultural values and way of life needs. They will also help in generating better solutions for future housing schemes.

All of this information will be kept **strictly confidential** and will not be used except for this study. However, if you would rather not answer a question feel free to skip it. Please answer the following questions:

(A) Background information

1) First, we are interested in knowing some things about you and your household members that will help us to classify your responses for our analysis.

Address.....
Name of Interviewee.....
Sample no.....

Visit number

Visit	Date	Time		Visit	Date	Time	
First			1	Third			3
Second			2	N/R			12

Socio-Economic structure of Household

1) Sex and marital status of head of household:

Male: single	1	Female: single	5
Male: married	2	Female: widowed	6
Male: widowed	3	Female: divorced/separated	7
Male: divorced/separated	4	N/R	12

2) Age of head of household:

20-30	1	Over 70 years	6
31-40	2	Do not know	0
41-50	3	N/R	12
51-60	4		
61-70	5		

3) Occupation of head of household:

Government employee (Teacher, Politician, Planner, Architect, Lecture, Medical Doctor, Police, etc.)	1
Private employee (Lawyer, Architect, Medical Doctor, etc.)	2
Self-employer (Farmer, Trader, etc.)	3
Retired	4
Unemployed	5
N/R	12

4) Household type:

Nuclear household (one family)	1
Extended household (Multi- family)	2
Others (please specify)	3
N/R	12

5) Household size:

1 person	1	7 person	7
2 person	2	8 person	8
3 person	3	9 person	9
4 person	4	10 person	10
5 person	5	Over 11 person	11
6 person	6	N/R	12

6) No of Male in the household

None	1	5 person	6
1 person	2	6 person	7
2 person	3	7 person	8
3 person	4	over 7 person	9
4 person	5	N/R	12

7) No of Females in the household

None	1	5 person	6
1 person	2	6 person	7
2 person	3	7 person	8
3 person	4	Over 7 person	9
4 person	5	N/R	12

8) No of children per hosehould: from (1 month- 6years)

None	1	5 children	6
1 child	2	6 children	7
2 children	3	7 children	8
3 children	4	Over 8 children	9
4 children	5	N/R	12

9) No of children per household from (7-18 years):

None	1	6 children	6
1 child	2	7 children	7
2 children	3	8 children	8
3 children	4	Over 8 children	9
4 children	5	N/R	12

10) No of Adults from 19-59 years:

None	1	5 person	6
1 person	2	6 person	7
2 person	3	7 person	8
3 person	4	Over 8 persons	9
4 person	5	N/R	12

11) No of Elderly (60 years +)

None	1	Over 5 person	6
1 person	2	N/R	12
2 person	3		
3 person	4		
4 person	5		

12) Members of the family who go to school:

None	1	5 person	6
1 person	2	6 person	7
2 person	3	7 person	8
3 person	4	Over 8 persons	9
4 person	5	N/R	12

13) Members of the family who go to work:

None	1	5 person	6
1 person	2	6 person	7
2 person	3	Over 7 persons	8
3 person	4	N/R	12
4 person	5		

14) Total household annual income (monthly income in the L.D)

Less than 120	1	301-400	5
121-150	2	Over 401	6
151-200	3	Others (please specify)	7
201-300	4	N/R	12

15) Number of cars owned

No car	1	Others (please specify)	5
One car	2	N/R	12
Two car	3		
More than two	4		

(B) Previous dwelling circumstances

Next we would like to ask you some questions regarding your previous home.

16) Where did you live before you moved to this present address?

In the oasis of Ghadames (in Libya)	1
Outside the oasis of Ghadames (in Libya)	2
N/R	12

17) How long did you live in your previous dwelling?

1-4 years	1	Others (please specify)	5
5-9 years	2	Do not know	0
10-14 years	3	N/ R	12
More than 15 years	4		

18) What sort of dwelling did you live in just before you moved in your present home?

Ghadamesian house	1	Flat in a block 3-4 storeys	5
Attached House	2	Flat in a block of over 4 storeys	6
Courtyard house	3	Others (please specify)	7
Flat in a block 1-2 storeys (two household house)	4	N/R	12

19) Under which of the following categories would you classify your previous home in terms of material used?

Adobe	1	Prefab structure	4
Natural stone	2	Other (please specify)	5
Reinforced concrete	3	N/R	12

20) Did you own your previous home, rented it, or lived there rent free?

Rented	1	Free	4
Owned by you	2	Other (please specify)	5
Owned by Government	3	N/R	12

21) Number of bedrooms:

One	1	Four	4
Two	2	More than five	5
Three	3	N/R	12

22) Number of living rooms:

One	1	N/R	12
Two	2		
More than two	3		

23) Number of kitchens:

One	1
More than two	2
N/R	3

24) Number of bathrooms:

One	1
More than two	2
N/R	3

C) Present dwelling circumstances

Now, we would like, to ask you some questions about various aspects of your present home.

25) Please, think back: when you decided to move from your previous home, what influence your decision to select your present home?

More space required	1	Sewage system problem	5
Changes in household needs (Marriage)	2	Live with parents	6
The old home need maintenance	3	Others (please specify)	0
No parking space	4	N/R	12

26) Have you always lived in this dwelling unit since you moved from the traditional house?

No	1
Yes	2
N/R	12

27) If not: What are the reasons which made you move:

To live near relatives neighbours	1	Problems with neighbours	5
School location	2	Others (please specify)	6
Public services availability	3	Do not know	0
Mosque location	4	N/ R	12

28) What type of housing do you occupy?

Villa type	1	Flat in a block 3-4 storeys	5
Attached House	2	Flat in a block of over 4 storeys	6
Courtyard house	3	Others (please specify)	7
Flat in a block 1-2 storeys (two household house)	4	N/R	12

29) Do you own your present home?

Rent	1	Other (please specify)	4
New owner	2	N/R	12
Original owner	3		

30) How long have you been living in this unit?

1-4 years	1	Others (please specify)	5
5-9 years	2	Do not know	0
10-14 years	3	N/ R	12
More than 15 years	4		

31) Number of bedrooms:

One	1	Four	4
Two	2	More than five	5
Three	3	N/R	12

32) Number of living rooms:

One	1	N/R	12
Two	2		
More than two	3		

33) Number of kitchens:

One	1
More than two	2
N/R	12

34) Number of bathrooms:

One	1
More than two	2
N/R	12

D) Evaluation of previous and present housing

* Here is a list of things related to housing that people are often concerned about. We would like to know how satisfied you are with each of these things about your previous and present **home** related to your socio-cultural values.

1 dissatisfied
2 neutral
3 satisfied
0 do not know
12 no response

(I) **The choice** of the dwelling in terms of:

Question	(A) previous 1	2	3	0	12	(B) present 1	2	3	0	12
35) Location of your home from the schools, mosques and other public services.										
36) Type of your dwelling										
37) Size of your dwelling										
38) Type of your neighbours										
39) Dwelling layout										
40) Type of building materials										

Others

Question	1	2	3	0	12	1	2	3	0	12

(II) **Privacy** in your home:

Question	(A) previous 1	2	3	0	12	(B) present 1	2	3	0	12
41) Visual privacy between male and female within the house										
42) Acoustic privacy between male and female parts within the house										
43) Privacy from street and neighbours										
44) Children's sleeping area (female and male)										
45) Parents sleeping area										
46) Interior space organisation (Kitchen, bathroom, living room and bed rooms locations).										

Others

Question	1	2	3	0	12	1	2	3	0	12

(III) **Security/safety** in your home:

Question	(A) previous 1	2	3	0	12	(B) present 1	2	3	0	12
47) Attempted Break in interms of security										
48) Children's school and locations in terms of safety										
49) Children's play area location in terms of safety										
50) Home location in terms of security/safety										
51) Vandalism										
52) Car safety (parking place for own car).										
53) Location of shopping area for daily needs in term of traffic safety										

Others

Question	1	2	3	0	12	1	2	3	0	12

(IV) **Religious** consideration in your home:

Question	(A) previous 1	2	3	0	12	(B) present 1	2	3	0	12
54) Home orientation										
55) Women's position (place or section).										
56) Relationship with neighbours										
57) Relaionship with public spaces										
58) Amount of indoor space (for female daily activities)										
59) Bathrooms design and layout										
60) Relatioship with mosque										

others

Question	1	2	3	0	12	1	2	3	0	12

(V) **Prestige** consideration in your home:

Question	(A) previous 1	2	3	0	12	(B) present 1	2	3	0	12
61) Quality of construction work and finishing										
62) Quality of basic utility systems (elect., water and so on)										
63) Amount of interior and exterior spaces										
64) Type of neighbours (status of neighbours)										
65) Home comfort in terms of climate										
66) Aesthetics (vegetation, planting and colour).										
67) Home location (Type of settlement, neighborhod).										

Others

Question	1	2	3	0	12	1	2	3	0	12

(VI) Overall, how satisfied are you with your previous and present **neighbourhood** in general in terms of your socio-cultual values?

	(A) previous 1	2	3	0	12	(B) present 1	2	3	0	12
The choice of the neighbourhood 68- location in terms services 69- Neighbours type 70- Neighbours relation										
Security/safety 71- Childern play area 72- Burglary										
73) Privacy										
74) Religion										
Prestige 75- Recreation 76- Neighbours tatus 77- Cleanliness and maintenance level										

Others

Question	1	2	3	0	12	1	2	3	0	12

(VII) Overall, how satisfied are you with your previous and present **settlement** in general in terms of your socio-cultual values?

	(A) previous					(B) present				
Question	1	2	3	0	12	1	2	3	0	12
78) The choice of settlement (location in relation to other settlements, work place, the city centre and the education facilities)										
79) Prestige (public services, recreational facilities)										
80) Privacy (street hierarchy, space for social activities)										
81) Religious (mosques location)										
82) Security/safety facilities (trafic system, police office, medical services, fire services and other public services)										

Others

Question	1	2	3	0	12	1	2	3	0	12

83) How would you feel about moving from the dwelling which you now live in?

Yes	1
No	2
N/R	12

84) If yes how you feel about moving?

I would very much want to move	1	I would want very much to stay where I now live	5
I would rather move than to stay where I am now	2	Dont know	0
It would make no difference to me	3	N/R	12
I would rather stay where I am now than to move	4		

85) Can you tell me what makes you dissatisfied with your present dwelling?

location	1	Aspect (external)	6
Layout	2	Others (please specify)	7
Arrangement of space	3	Dont know	0
Type of Neighbours	4	N/R	12
Type of design	5		

E) Dwellers' attitudes towards their neighbourhoods and dwellings

Have you always lived in this neighbourhood since you moved from the traditional neighbourhood?

86) If not: What are the reasons which made you move:

Looking for relatives neighbours	1	Problems with neighbours	5
Looking fo friends or who has the same demographic characteristics	2	Others (please specify)	6
School location	3	Do not know	0
Public services availability	4	N/ R	12
Mosque location	5		

87) When your household has a visitor do you feel uncomfortable?

Yes	1
No	2
N/R	12

Why.....
.....

88) If yes: do you think any of the rooms in your home are in the wrong place in relation to other rooms?

Kitchen location	1	Bedrooms location	6
Sitting room location	2	Others (please specify)	7
Reception room location	3	Dont know	0
Dining room location	4	N/R	12
Bathrooms location	5		

89) Are there any modifications that you have carried out since you moved into this dwelling?

Yes	1
No	2
N/R	12

90) If yes: what are they?

Extra rooms	1	Extra iron screens or windows.	8
Subdivision of rooms	2	Additional iron door	9
Closed opening	3	Alarm	10
Changing orientation	4	Others (please specify)	11
Extension of courtyard	5	Do know	0
Conversion of rooms	6	N/R	12
Closed balconies	7		

91) Are there any changes you would like to carry out but cannot do?

Yes	1
No	2
N/R	12

92) If yes, what are they?

Extra rooms	1	Extra iron screens or windows.	8
Subdivision of rooms	2	Additional iron door	9
Closed opening	3	Alarm	10
Changing orientation	4	Others (please specify)	11
Extension of courtyard	5	Do know	0
Conversion of rooms	6	N/R	12
Closed balconies	7		

93) Why do not you do it?

No money	1
Land to small	2
Neighbours problem	3
Construction problem	4
permeation to build	5
N/R	12

94) Finally do you think changes in your residential environment have influenced your way of life?

very much	1
a lot	2
not all	3
little	4
very little	5
Others (please specify)	6
Do not keow	0
N/R	12

How.....
.....

PART TWO HOUSING PREFERENCES QUESTIONNAIRE

Assessing Housing Preferences

We are interested in knowing the things about housing that have higher priorities to you and which may influence your decision about selecting your future home. Therefore suppose that you have decided to move from your present home and started looking for a new home.

We would like to know some things about the type of home you may wish to move into in the future.

95) What type of settlement you preferre?

Traditional settlement	1
Contemporary settlement	2
Others (please specify)	3
Do not know	0
N/R	12

96) Why would you want this particular type of settlement?

Suitability of settlement location	1
Suitablity of street and sewage system	
Building arrangement	2
Availability of public services such as (squares, schools, mosques, water, recreation places)	3
Others (please specify)	4
Do not know	0
N/R	12

97) What type of neighbourhood you preferre?

Traditional neighbourhood	1
Contemporary neighbourhood	2
Others (please specify)	3
Do not know	0
N/R	12

98) Why would you want this particular type of neighbourhood?

Planned according to our choice	1
More safe and secure	2
Adequate outdoor space for household privacy	3
Availablity of Religious needs	4
More prestigous	5
Others (please specify)	6
Do not know	0
N/R	12

99) What type of housing would it be?

Detached house	1	Flat in a block 3-4	5
Attached House	2	Flat in a block of over 4 storeys	6
Traditional Ghadamesian house type	3	Others (please specify)	7
Flat in a block 1-2 (two household house)	4	N/R	12

100) Why would you want this particular type of housing?

Designed according to our choice	1
More scure and safe	2
Presevation of household privacy	3
The concern of religious needs	4
More presitigous	5
Others (please specify)	6
Do not know	7
N/R	0

101) Which of the following options would you desire to have in your future home?

Outer court	1	Others (please specify)	4
Inner court	2	Do not know	0
No court	3	N/R	12

102) which of the following options you desire to have in your future home?

Indigenous design	1	Others (please specify)	4
Western concepts of design	2	Do not know	0
A blend of indigenous and western concepts of design	3	N/R	12

Finaly Could you please rank the following variables according to their importance:

(1) Most important, and (12) Least important

Question	1	2	3	4	5	6	7	8	9	10	11	12
103) Homes location												
104) Size (indoor and outdoor)												
105) Suitability of privacy, security/safety, religious and prestige												
106) Physical appearance												
107) Quality of services & utilities												
108) Building materials												
109). Space arrangement (location of rooms)												
110) Type of furniture												
111) Size and location of guest room.												
112) Location of kitchen and bathrooms												
113) Amount of indoor space												
114) Amount of outdoor space.												

THANK YOU FOR YOUR CO-OPERATION